POPULAR

GREENHOUSE BOTANY.

O. Jewitt lith.

Vincent Brooks Imp.

Nepenthes Rafflesiana.

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POPULAR

GREENHOUSE BOTANY;

CONTAINING

A FAMILIAR AND TECHNICAL DESCRIPTION

OF A SELECTION OF THE

EXOTIC PLANTS INTRODUCED INTO THE GREENHOUSE.

BY

AGNES CATLOW, 1807 ? - 1889

AUTHOR OF 'POPULAR FIELD BOTANY,' ETC. ETC.

Smithsonian Institution,
242036
National Museum.

"Nature and Art t' adorn the page combine,
And flowers exotic grace our northern clime."

LONDON:
LOVELL REEVE, HENRIETTA STREET, COVENT GARDEN.
1857.

JOHN EDWARD TAYLOR, PRINTER,
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C36

This Little Work

IS AFFECTIONATELY INSCRIBED TO

MR. AND MRS. LONG,

OF GROVE HOUSE, KNUTSFORD, CHESHIRE,

BY

THEIR SINCERE FRIEND,

THE AUTHOR.

PREFACE.

On entering a crowded assembly, filled with members of the fashionable world, we gaze on the numerous groups of fair human flowers with some interest, admiring the grace of one, the brilliancy of another. Perhaps we carelessly ask the name of those who particularly attract our attention or claim our admiration; but all soon fades from the memory, leaving only a confused remembrance of something beautiful and agreeable. Let however any of these chance acquaintance be introduced into our home or to our intimacy, and the case is immediately altered: then we no longer confine our regards to their personal appearance; their mere outward beauty, charming as it may be, forms the least of their attractions, and we inquire with interest

into the family connections and the history of our new acquaintance, their qualities, their peculiarities, and characteristics,—all are interesting to us, and the more so, the more intimately we study all that distinguishes them from the unknown crowd of which they at first constituted a part.

Apply this to plants, and it will be seen that the same feeling is experienced with regard to our floral acquaintance. Enter an extensive garden stocked with rare plants, or a crowded conservatory full of exotics, and we admire their lovely forms, their brilliant colours, the gracefulness of one, the stately growth of another. We carry away a general sense of beauty, and even this is a great pleasure; but these lovely strangers are strangers still, and they soon fade from remembrance. Should however one or two be presented to us, how eagerly do we inquire their names, the country from which they were brought, their qualities, uses, and peculiarities, and then only do they become favourites and almost friends; for the most minute inquiry and the most patient investigation but bring to light fresh beauties and

new sources of interest. This, then, should be the aim of those who cultivate plants, more particularly in a greenhouse, as leading naturally to a more perfect intimacy with each individual; and it is to facilitate this *study* of plants, rather than to excite *admiration* of their outward forms, that a botanical character has been given to this little Work, and the peculiarities of structure, together with the Classes, Orders, and Genera annexed, so as to aid in the inquiry, and encourage the student to become thoroughly acquainted with the favourites of the garden and conservatory.

To those Amateurs whose taste does not lead them to study Botany, this Work will not be the less useful as an aid to the cultivation of their greenhouse favourites; for the scientific part may be omitted altogether, without destroying its utility as a Gardener's Manual.

The descriptions of the Orders and Genera are derived from Dr. Lindley's 'Vegetable Kingdom' and Loudon's 'Encyclopædia of Plants.'

Nice, 1857.

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POPULAR

GARDEN BOTANY.

(GREENHOUSE PLANTS.)

However beautiful and interesting an English garden may be in spring, summer, and autumn, when a rapid succession of graceful forms and lovely colours present themselves to the eye of the patient and nature-loving cultivator, the time must come, and ever comes too soon, when it may be said with Bryant:—

"Where are the flowers, the fair young flowers, that lately sprang, and stood
In brighter light and softer airs, a beauteous sisterhood?
The rain is falling where they lie, but the cold November rain
Calls not from out the gloomy earth the lovely ones again."

During the comparatively desolate period of winter, when remembrance of the past only brings regret, and hope for

the following season is rather too distant to afford much consolation, the greenhouse offers its valuable services, not merely by nurturing and preserving those favourites which have only become partly acclimatized, but by presenting to us its own peculiar gifts, in those more delicate exotics which will not at present, and in all probability never will, bear exposure to our rude climate, but must be fostered by protection from the outer air, and occasionally by artificial heat. A greenhouse is now generally considered an indispensable addition to a garden of any pretension; and, as Cowper says, "Who loves a garden loves a greenhouse too," for the very efficient reason, that "there blooms exotic beauty, warm and snug, while the winds whistle and the snows descend."

A volume having been provided to aid the young gardener in the acquirement of that knowledge which is essential to the management of a garden, and also to explain the botanical arrangement, characteristics, and properties of the plants cultivated therein, the following pages will be devoted to Greenhouse Gardening,—treating of those plants which are generally introduced under the shelter of glass both summer and winter, and also those which only require a security from the cold of the latter season. A greenhouse

is, in fact, simply a place secure from frost; for when the barometer falls so low that freezing is apprehended, then a fire to heat the flues will raise the temperature within the house, causing the plants to enjoy a propitious climate, whilst all out-of-doors feels the severity of the weather. Here the still and mild air allows vegetation to go on,—not to live merely, but to flourish and to arrive at perfection,—and, contrasted with the state of the garden, the flowers seem doubly valuable and more exquisitely beautiful at this season than in the height of summer, when the profusion makes each individual plant of less value. A visit to this crystal palace in miniature, when out-of-door pursuits cannot be followed, is a source of pleasure which few will deny themselves who have the means to gratify it.

In the erection of a greenhouse, and the choice of a suitable locality for it, no plans can be given here, as the style of house, aspect, and size must depend entirely upon circumstances, and are better left to experienced persons on the spot. It is therefore supposed that the house is built in the best possible manner; but it is advised, where practicable, that it should be divided into two parts, one to be kept warmer than the other for Ferns—which also love a moister atmosphere than most other plants,—or for forcing

flowers in winter, to ornament the conservatory or sitting-room; or this portion may be used for propagating young plants. A slate cistern in one corner should not be forgotten, which may receive rain from the outside; the water is then of the same temperature as the house, and in a more suitable state for the tender plants. It is a good plan also to have a small building attached, or a portion of a large greenhouse cut off, to be used as a potting-house, fitted up with a convenient table, with shelves and drawers for bulbs, seeds, and tools.

The house now only requires to be filled with plants, and managed with ordinary care, with the assistance of a gardener who has some experience in the subject: one is generally attached to a good garden, who has the management of the hot-water apparatus, or whatever plan is adopted for heating; who knows when windows should be open or shut, water used or withheld, and all the little details of this kind, which must be attended to by a person who is on the spot at all times and seasons. Still a few plain directions may be useful to note here; as, that air must be admitted very sparingly in cold weather, but in summer and all warm spring-days very freely, or the plants become tender and grow straggling: in winter, water is to be administered

very cautiously, only keeping the earth just moist, but in spring increased in quantity, and particularly when the plants are flowering and in sunny weather. The sooner fires can be dispensed with, the better it is for the plants in general, but still precautions must be taken against even slight frosts, by shutting up the house early and covering with mats. If insects appear on the plants, the house must be fumigated, or each plant washed carefully. In summer a rolling-blind is almost indispensable; for as the house turns more or less to the south, the plants are liable to be burned or their fine colours lessened by the scorching sun.

These pages are only intended for the amateur, who, delighting in the care of tender plants, may still not know what are suitable for the greenhouse, or how to manage them, and who may wish also to study them botanically, so as to have some idea of their arrangement and scientific character. The work includes many more plants than could be introduced into one house, but their number ensures a variety according to the taste and means of the proprietor. A greenhouse, stocked with judgment and arranged with elegance, is very pleasing and satisfactory, particularly if the possessor will be careful to have a variety of climbing-plants to cover the pillars and woodwork; amongst the most

charming of these may be mentioned, the *Cobæa, Eccremocarpus, Hoya, Kennedia, Lophospermum, Tropæolum, Passiflora, Mandevillea,* and *Bignonia.* A few ornamental baskets may be introduced with advantage, to be suspended from the roof, containing plants which look well hanging down, as *Cereus, Nierembergia, Saxicava sarmentosa,* etc. etc., but these do equally well placed on shelves. At the back of the stageing should be arranged the larger class of plants and evergreens, to form a good background; next, bright flowering plants, and lastly, bulbs, and those that are delicate and low, which bear a close inspection. These should not be crowded, but so placed that if possible the pots of all may be hidden by the foliage of those below; the colours of the flowers must also be arranged to please the eye: in short there is ample room for the display of taste in various ways. Of course everything must be kept perfectly neat; every dead or decaying leaf and stalk removed, the heads of flowers tied up, and stems supported where necessary, the earth stirred to admit air, and a hundred little things which are constantly occurring; so that there is a never-ending scene of pleasure and amusement to the true lover of these beautiful and interesting nurslings. The greenhouse, too, is in its most attractive state at the

very time when there is little or no interest in the garden, and on this account those plants which will flower with good cultivation, at that dormant period of the year, should be more particularly chosen, as in the summer, when the garden itself is gay, the house becomes less attractive. If a warm division, or forcing department, be added, Rhododendrons, Azaleas, Camellias, Heaths, etc., and many of the bulbs will show bud early, and can be removed to the cooler part to flower, while others may take their place, and a constant succession be kept up which will render not only the greenhouse but the drawing-room gay all the winter months. The fortunate possessors of a conservatory as well as a greenhouse may keep the latter for forcing merely, so that the conservatory (generally attached to the dwelling), can be stocked with flowering plants when they are in their greatest beauty; but, previous to removal, care must be taken to harden them gradually, by placing them first for a day or two in the cooler part of the greenhouse.

The objection made by many to the so-called "hard" names given to plants will be overcome, and the difficulty found in remembering them, be obviated by all those who are in earnest in the pursuit, for a little attention (equally required to learn an English name) will soon impress them

on the memory, and our favourites are surely worth a little pains. These learned names are for the purpose of making a kind of general language, equally understood by the botanists of every country. The names of the genera have been explained in these pages, so that however incomprehensible they may at first appear to the unlearned in the Greek and Latin languages, they may, by having a clue to their meaning, more easily retain them. Many think English names should be given to all plants, but this is impossible, and would only render the subject more puzzling, as appellations of this kind are either only local, or given without any rule, and every one would think they had an equal right to invent them, so that the same plant might have a hundred names attached to it. The learned names cannot always be translated into one English word: for example, that of the beautiful and curious plant, the *Anigozanthos*, which word means *to raise up*, and *a flower*, could not be rendered into one English appellative, yet when understood it is seen to be characteristic; or the word *Agave*, which means *admirable*, though very characteristic of this plant, is equally so of others, and would therefore be no distinctive name if translated. Those who complain of the difficulty, have probably had none in re-

membering the words *Amaryllis, Petunia, Fuchsia, Verbena, Camellia, Kennedia,* and many others of common occurrence, showing that it is only want of familiarity with the plants themselves that causes the difficulty of which they make such bitter complaints. To assist the memory, it is a good plan to have every plant labelled, and this is easily done, and in a very neat manner, by having nicely-shaped sticks, or proper labels, painted white, and so prepared that the name may be written with a pencil; these inserted in a conspicuous part of each pot will attract the eye, and constantly recall the name: if this plan be followed up rigidly, it will prove very satisfactory both to the owner and also to visitors, who frequently wish to know the name of a plant new to them.

The Vegetable Kingdom is divided by Lindley into seven great classes, of which three only are mentioned here. Acrogens contains Ferns; Endogens, Grasses, Lilies, Orchises, and Palms; and Exogens includes the rest of the beautiful plants cultivated in gardens, greenhouses, and stoves. The peculiarities of these classes, with the orders and genera, are described in their respective places.

Class I.* ACROGENS.

Flowerless plants, but with the stem and leaves usually distinguishable.

LYCOPODIACEÆ.

Acrogens, usually moss-like plants, with creeping stems and imbricated leaves; or they are stemless, with erect, awl-shaped leaves. The spore-cases are from one to three-celled, placed between the stem and leaf, sessile, either bursting by distinct valves or not opening, and containing powdery matter, or minute seeds marked at the apex with three radiating, elevated ridges. Plants intermediate between mosses and ferns.—Natives most abundantly of hot damp climates.

LYCOPODIUM. (Club-moss.)

Generic Character. (*Cryptogamia Filices.*) Thecæ or spore-cases kidney-shaped, one-celled, two-valved, with many sporules (or seeds), which are very minute and powdery.

The name arises from the Greek for *a wolf* and *foot*, from the form of the root. Several species of this genus are

* Second Class of Lindley.

introduced into the greenhouse on account of their pretty moss-like appearance, and their evergreen character; they flourish best in pots set in pans of water, or at the edge of tanks, as they delight in moisture. *L. densum,* from New South Wales, and *depressum,* from the Cape, are often cultivated in the greenhouse, and are extremely ornamental. *L. Helveticum,* a Swiss species, is also very pretty and hardy; its bright-green leaves and trailing stems make it a very desirable plant for the edges of the aquarium, or water-tank, as it may be used in hiding the unsightly appearance of the sides and edges of this necessary appendage to the greenhouse. It looks well also growing on the earth of the large pots, where perhaps the stem of the plant is bare and tall, and if it can in this situation be kept sufficiently moist, takes off from the ugly appearance of the bare earth, and as it also hangs very gracefully over the edge, it hides the pot as well. There are other hardy species.

FERNS.

The beautiful and interesting plants known as "Ferns" are now so generally cultivated, either in closed cases or in

a warm part of the greenhouse, that they cannot be omitted in a work devoted to exotics, a few of the genera and species are therefore here described; but it is strongly recommended that those who intend to devote some attention to this class of plants, should procure the numbers, already out, of a work entitled 'A Natural History of Ferns, British and Exotic,' by E. J. Lowe, Esq.; when completed, it will comprehend all the Ferns which have been introduced into the greenhouses and stoves of this country, with directions for cultivation, and many other interesting particulars. The following account of Ferns is to be considered only as an introduction to this interesting subject.

These plants have a stem either creeping below or in the ground, or growing like a tree, having leaves which are coiled up when young, either simple or divided in various ways. The reproductive organs consist of spore-cases arising from the veins upon the under surface of the leaves (or fronds, as they are called) or from their margin; these cases either have stalks in the form of an elastic ring, or they are stalkless; sometimes they arise beneath the cuticle which then forms a cover for them, called an indusium; or they appear on the outer surface of the fronds.

OPHIOGLOSSACEÆ.

Acrogens, with the stem erect or pendulous, with a cavity in the middle instead of pith; below, the stalks of the leaves and the spike become blended together. Leaves with netted veins, sometimes forked. Spore- (seed) cases collected into a spike, two-valved, without any trace of an elastic ring. Spores resembling fine powder.—Natives of the Tropics and temperate latitudes.

OPHIOGLOSSUM. (Adder's-tongue.)

Gen. Char. (*Cryptogamia Filices.*) Thecæ naked, forming a jointed spike of two rows, opening at the sides; frond undivided.

The Greek for *serpent* and *tongue* gives the name to this genus of ferns, from the form of the leaves. *O. vulgatum* is our well-known Adder's-tongue Fern, and several species have been introduced into the greenhouse, as *O. gramineum* and *costatum*, from Australia; *bulbosum*, from America, and *Lusitanicum*, from Portugal, are even hardy enough to be grown in the garden.

BOTRYCHIUM. (Moonwort.)

Gen. Char. (*Cryptogamia Filices.*) Thecæ naked, globose, distinct, attached to a compound spike, opening nearly at the side.

The name is derived from the Greek for *a bunch,* in allusion to the form of the fructification. *B. Lunaria* is the English species; *O. obliquum, dissectum, Virginicum, fumarioides,* and *gracile,* are North American species, and tolerably hardy; *Australe,* from Australia, requires the shelter of the greenhouse always. These plants are not striking, but are sometimes introduced into cultivation on account of their curious forms, to mix with other Ferns.

POLYPODIACEÆ.

Acrogens, which are principally distinguished by the thecæ having a ring or band of coarse meshes, which is too strong to be broken through when the case opens to discharge its contents. Most of the species have the spore-cases on the back of the leaf (frond), except *Hymenophylleæ* and *Osmundeæ;* in the latter they are on contracted leaves, resembling those of the last Order. —They are natives of almost every part of the world. The leaves and roots of some genera are useful.

WOODSIA.

Gen. Char. (*Cryptogamia Filices.*) Sori dot-like, scattered; indusium membranous, placed under the sori, and ciliated.

Named after Mr. Woods, a British botanist. *W. hyper-*

borea is a Scotch species, and *ilvensis*, British; *W. glabella* and *Perriniana* are North American, and *Caucasica* is from the Caucasian mountains: these will even bear the open air, but look well mixed with other ferns in the greenhouse. Besides these, there are *alpina, infidula, mollis,* and *obtusa*. They are all of small size, with pinnated fronds.

GRAMMITIS.

Gen. Char. (*Cryptogamia Filices.*) Sori linear, transverse, concealed under chaffy scales: no indusium.

From the Greek word *gramma,* a letter, as the sori are placed so as to have some resemblance to letters. *G. Australis,* a species from New South Wales, is often grown in the greenhouse; and there are others, but they require stove-heat.

POLYPODIUM.

Gen. Char. (*Cryptogamia Filices.*) Sori in little round scattered convex spots: no indusium.

Named from the Greek word for *many* and *foot,* on account of the multitude of roots. The lover of Ferns is familiar with this noble genus, from the English species

vulgare, Phegopteris, and *Dryopteris.* Several hardy species are brought from America; as *Scouleri, Virginianum, incanum,* and *hexagonopterum;* from Madeira, as *drepanum,* but these will all flourish in a damp greenhouse. *P. lineare,* from Japan, and *Australis,* from New South Wales, require the greenhouse altogether.

ASPIDIUM. (Shield Fern.)

Gen. Char. (*Cryptogamia Filices.*) Sori roundish, scattered; indusium solitary, orbicular, fixed by the centre, or at the side, making it kidney-shaped.

Named from the indusia being shield-shaped, from the Greek for *buckler.* The English Ferns of this genus are *irriguum, dumetorum, dilatatum, cristatum, dentatum,* etc. America yields for growth in this country a few, as *cicutarium, bulbiferum, atomarium,* etc. *Halleri* and *Rhæticum* are from Switzerland; *alpinum* and *montanum* are from the South of Europe, and *æmulum* from Madeira. These are all tolerably hardy, but are better for the shelter of the greenhouse, and other species of the genus require stove-heat. This is an extremely pretty tribe of Ferns.

NEPHRODIUM.

Gen. Char. (*Cryptogamia Filices.*) Indusium kidney-shaped; some or all of the lateral veins of each pinnula united to corresponding veins in the adjoining pinnula.

This genus has been taken from *Aspidium* by some authors, and embraces the *A. Filix-mas, aculeatum, lobatum, Lonchitis,* etc. of England. The foreign species are numerous; many have been introduced into the greenhouse and stove, and are very ornamental. The following are adapted to the greenhouse, and several of them are also sufficiently hardy to bear the open air:—*N. acrostichoides, Noveboracense, marginale, erosum, Goldianum, Lancastriense, intermedium,* and *obtusum,* are American species; *fragrans,* a sweet-smelling species, is found in Europe; and *molle* is a native of New South Wales: the latter requires the shelter of the greenhouse constantly, and a turfy peat and loam soil.

ASPLENIUM. (Spleenwort.)

Gen. Char. (*Cryptogamia Filices.*) Sori linear, placed upon lateral veins; indusium membranous, flat, separating inwardly.

The name is derived from the Greek for *spleen,* as the

plant was formerly supposed to cure disorders of that part of the body. The well-known species *A. Filix-fœmina, lanceolatum, Adiantum-nigrum, Ruta-muraria, septentrionale, marinum, Trichomanes,* and *viride* are natives of our own soil. The following foreigners are introduced from Europe, and can be grown in the garden, as *Halleri,* from Switzerland; *fissum,* from Hungary; *Petrarchæ,* from France; but *palmatum,* from the South of Europe, requires the frame in winter. From America we have *Michauxii, montanum, thelypteroides, melanocaulon, ebeneum,* and *angustifolium:* these are also tolerably hardy; but *acutum* and *Canariense,* from the Canaries; *diversifolium* and *obtusatum,* from New Zealand; *falcatum* and *flabellifolium,* from New South Wales; and *monanthemum,* from the Cape, and other species, are all greenhouse Ferns, and a very elegant and beautiful tribe. *A. Australe, falcata,* and *serra* are now removed to a new genus, *Acropteris; diversifolia, bulbifera, rhizophylla, laxa,* and *Odontites* are generically called *Darea;* and there are still others which may be procured for the greenhouse.

ALLANTODIA.

Gen. Char. (*Cryptogamia Filices.*) Sori oblong, oblique with respect to the midrib; indusium membranous, vaulted, cylindrical, adhering to a vein, opening inwards, finally spreading outwards.

Named from the Greek for a *sausage,* to which the arched indusia bear some resemblance. The species of this genus require the greenhouse or stove; the following grow well in the former:—*axillaris, umbrosa,* and *strigosa,* natives of Madeira; *Australis,* from Australia; and *tenera,* from New South Wales.

DOODIA.

Gen. Char. (*Cryptogamia Filices.*) Sori lunulate, distinct, parallel with the midrib; indusium membranous, superficial, flat, separating inwardly.

Named after Mr. Doody, an investigator of cryptogamic botany. Small, stiff, and rough-leaved Ferns. We have *D. Virginica,* from North America; *aspera, lunulata, caudata, maxima, media, Kunthiana,* and *blechnoides,* from Australia. These grow in the greenhouse, in peat, loam, and sand.

GYMNOGRAMMA. (Golden Fern.)

Gen. Char. (*Cryptogamia Filices.*) Thecæ seated on the forked veins of the fronds; indusium none.

This genus takes its name from the sori having no indusium, therefore *naked,* and *gramma,* a letter, from the sori upon the forked veins resembling Roman writing. This is a very beautiful genus of Ferns, but unfortunately nearly all require stove culture; a few can be kept however in a warm greenhouse, as *G. Martensii,* which is often known under the name of *chrysophylla:* the frond is about eighteen inches long; "the colour of the upper surface is a dull yellowish-green, whilst beneath it is covered profusely with a rich yellow farinose powder; the form of the frond is bipinnate, with lanceolate pinnæ, and elongated or roundish pinnatifid pinnules, the segments being toothed: it is perhaps the handsomest of the farinose-powdered Ferns, being the most golden of the genus." This Fern is not sufficiently hardy to grow in the greenhouse, but it will bear the cooler air for a time; it is truly styled the "King of the Gold-ferns." *G. Totta,* a native of Madeira, requires a warm greenhouse, but it is at present very rare. This account is taken from the work of Mr. Lowe, mentioned at p. 12.

BLECHNUM.

Gen. Char. (*Cryptogamia Filices.*) Sori linear, continuous (sometimes interrupted), contiguous to the midrib; indusium membranous, superficial, continuous, opening inwards.

A Greek name for a Fern, thought to mean *powerless.* A few species may be raised in the greenhouse, in turfy peat, as *hastatum,* from Chili; *lævigatum, cartilagineum,* and *striatum,* from Australia, and *Australe,* from the Cape.

LOMARIA.

Gen. Char. (*Cryptogamia Filices.*) Sori linear, continuous, occupying the surface of the linear pinnæ of a particular frond; indusium marginal or sub-marginal, and involute.

The name arises from the Greek for *edge,* on account of the marginal position of the indusia. A genus of fine Ferns, of which *L. Spicant* is English, and the following can be cultivated in the greenhouse:—*L. auriculata* and *Capensis,* natives of the Cape, *nuda* and *Patersoni,* of Van Diemen's Land, *lanceolata* of New Zealand, and *Magellanica* of the Falkland Islands.

ALLOSORUS. (Rock-brake.)

Gen. Char. (*Cryptogamia Filices.*) Margin of the frond convolute, concealing the masses of thecæ.

A. flexuosus is a very pretty species, of a graceful twining or climbing habit, growing about four feet long; the main rachis is wavy, and the secondary stalks curiously zigzag; these are pinnated with from three to five pinnules, and are remarkably light and airy in appearance; the fructification is on the two sides of the pinnule. *A. calomelanos* is a native of rocky places at the Cape: its bright green fronds, with black stalks, make it an elegant Fern for the greenhouse, where it flourishes in a cool place. *A. cordatus* also requires a cool greenhouse, though it is a native of Mexico.

CHEILANTHES.

Gen. Char. (*Cryptogamia Filices.*) Sori dot-like, separate, marginal in the recess of the indusium; indusium either reflexed crenules of the frond, or scale-like, membranous, and arising from the margin, or nearly continuous, opening inwards.

Named from the Greek for a *lip* and *flower*, in allusion to the lip-like form of the indusium. This is a very pretty

O. Jewitt lith. Vincent Brooks Imp.

Scolopendrium Krebsii.

genus, formerly included in *Pteris*. The greenhouse species are—*pteroides, rufescens, suaveolens, odora, hirta, micromera, caudata, farinosa*, etc.: these are from various parts of the world. The last-mentioned is an exceedingly pretty species, the stems being of an ebon blackness, the frond dark-green above and of a pure white beneath, caused by a powdery substance; it is pinnated, with the lower pair of pinnæ remote; the lower segments near the rachis longer than the rest. They only require a temperate greenhouse.

SCOLOPENDRIUM. (Hart's-tongue.)

Gen. Char. (*Cryptogamia Filices.*) Thecæ in elongate and straight lines, always in pairs, the two indusia meeting between them, and at first appearing but as one indusium.

Little marks on the lower part of the fronds of this plant being somewhat like the insect called *Scolopendra*, the plant has derived its name from this circumstance. *S. officinarum* is the British species. *S. Krebsii* is a curious species, having a pinnated frond, which is rare in this genus; the frond is more than a foot long, erect, broadly lanceolate, pointed; pinnæ near each other except the lower ones; sori broad but long, and in pairs; the indusia ciliated at

the margin: it is a native of the neighbourhood of Graham's Town and Natal, and requires only a temperate greenhouse.

NOTHOCHLÆNA.

Gen. Char. (*Cryptogamia Filices.*) Sori marginal, linear, continuous; no indusium; capsule short, pedicellate; frond hairy.

The word means *spurious* and *a cloak,* as the sori have no real indusia. A beautiful genus of small Ferns, of which some species require the stove, but the following bear the cooler air of the greenhouse:—*N. nivea,* from Mexico; *tenera,* from Chili; *Eckloniana,* from the Cape; *distans,* from Australia; *sinuata,* also from Mexico, is an interesting species; the fronds are about a foot long, the pinnæ shortly stalked, near an inch long, oblong, deeply sinuated above, clothed with wool beneath, densely covered with membranaceous scales, generally white or brownish; sori marginal. The species of this curious genus are either hairy, woolly, scaly, or covered with powder.

ADIANTUM. (Maiden-hair.)

Gen. Char. (*Cryptogamia Filices.*) The margin of the frond is

itself reflexed, and the reflexed portion bears nearly circular or kidney-shaped masses of thecæ.

The genus is named from the Greek word for *dry*, as the frond cannot be wetted even when plunged beneath water. This is one of the most elegant and delicate of the Fern tribe, and it is fortunate that several will bear cultivation in the greenhouse. *A. reniforme* is a native of Madeira, and has its fronds simple, kidney-shaped, and the edges notched; it has long been known in this country: *pedatum*, from Canada; *pubescens*, *hispidulum*, *assimile*, and *formosum* are from Australia; *Æthiopicum* is from the Cape; *cuneatum* from Brazil, is generally cultivated in the hothouse, but it will also flourish in the greenhouse; the whole genus however is considered as prospering best in a hot atmosphere, and though some are hardy, they are quite different plants when subjected to the climate of the stove.

DAVALLIA. (Hare's-foot Fern.)

Gen. Char. (*Cryptogamia Filices.*) Sori roundish, nearly terminal and marginal, distinct; indusium superficial, attached inwards, and opening outwards.

Named after a Mr. Davall, a Swiss botanist. *D. Cana-*

riensis, a native of the Canaries, has the curious propensity of curving its root over the side of the pot in which it grows, and as it is covered with brown hair, it resembles a hare's foot, whence the English name; it is a handsome Fern. *D. gibbosa* is from New Zealand; *dubia* and *pyxidata* from New Holland; these will live in the greenhouse, the rest require the stove. The soil should be peat and sand.

HYMENOPHYLLUM. (Film-Fern.)

Gen. Char. (*Cryptogamia Filices.*) Sori marginal, inserted upon a long bristle-like receptacle; indusium erect, bell-shaped.

The filmy nature of the frond is the character from which the name is taken. These delicate little Ferns are difficult to cultivate, for they require much shade, and do best among damp moss. *H. flexuosum, sanguinolentum, dilatatum,* and *nitens* have been introduced from New Zealand.

CYATHEA. (Tree Fern.)

Gen. Char. (*Cryptogamia Filices.*) Sori globose and scattered, inserted upon an elevated receptacle, which arises from a division of the vein; indusium spherical, opening in the middle, and finally becoming flat.

Named from the cup-shaped figure of the indusium. This genus contains the celebrated "Tree Fern," so often met with in the tropics, and described by travellers. An extract from Mr. Gosse's work on Jamaica, where he graphically describes these plants, may not be out of place here, although the species referred to is only cultivated in this country in the stove. Mr. Gosse says:—"I will mention one more member of this tribe, a Tree Fern of peculiar beauty, that I found growing in some abundance, in a spot of more than usual gloom and grandeur, far on towards Rotherwood. The species was, I believe, *Cyathea arborea*, taller and more graceful than the *Alsophila* of the mountain brow. The slender stems, each marked with its oval scale-like scars, and throwing out from its summit its swelling cluster of leaf-bases, so compact and so regular, as to look like the elegantly fluted knot of some cast-iron pillar, again constricted before they spread abroad in a wide umbrella of finely-cut foliage, had an imposing effect here in the rather open woods, surrounded by the naked, irregular trunks (moss-grown, and studded with parasites) of the tall trees that towered up, and interwove their branches far above their heads, shutting out the sun, and almost the light." *C. medullaris* and *dealbata*, both Tree Ferns of New Zealand, can

be grown in the greenhouse, and are great treasures when procured and kept in health, as their graceful fronds, towering above other plants, are a great addition to the variety of form collected together: the latter has a white powder on the under side of the frond, which adds to its beauty.

PTERIS.

Gen. Char. (*Cryptogamia Filices.*) Thecæ in a continuous marginal line, covered by a continuous marginal indusium.

Named from the Greek for *plume*, from their feather-like appearance. This is an extensive genus, of which a few are introduced into the greenhouse, as *P. arguta*, from Madeira; *rotundifolia*, from New Zealand; *Cretica*, from Candia; *umbrosa* and *tremula* from New South Wales; *hastata* and *macrophylla*, from the Cape; *intramarginalis*, from Mexico; *Kingiana*, from Norfolk Island; and *longifolia* and *serratula*, from India. These Ferns should have a peat and loam soil.

Class II.* ENDOGENS.

Increase of new wood taking place for the most part internally. Leaves straight-veined and permanent. Organs of fructification in threes. Embryo with one cotyledon or seed-lobe.

PALMACEÆ.

Spadix scaly, terminal, often branched, enclosed in a one or many-valved spathe, which is often woody. Flowers small, supported by scaly bracts; divisions of calyx three, colourless, fleshy or leathery, not falling; petals three, often larger. Stamens inserted into the base, various in number. Ovary free, usually composed of three parts. Fruit a drupe, berry, or nut. Leaves terminal, clustered, usually very large. Trunk arborescent, simple.—Tropical trees generally, and almost every part of immense value.

CARYOTA.

Gen. Char. (*Monœcia Polyandria.*) Common spatha compound; barren flower—calyx three-leaved, petals three; fertile—calyx three-leaved, corolla three-parted, style one; berry one-celled, two-seeded.

The name is supposed to be derived from the Greek for *head,* as wine made from the sap soon affected the head of those who drank of it. A few species of this elegant Palm

* Fourth Class of Lindley.

have been introduced into this country, as *C. urens*, from the East Indies; *horrida*, from South America; and *mitis*, from China: the two former require the heat of the stove, but the latter bears the cooler air of the greenhouse, and when well treated and favourably situated, is a graceful addition; its fine leaves are often three or four feet long, drooping, and twice pinnated; the straw-coloured flowers are in a branched spike, and these are succeeded by round black berries, which are however not eatable. The *C. urens* in its native country often attains the height of sixty feet, and has fine pinnated leaves; the stem yields a sweet and pleasant liquor, called toddy, which is boiled by the natives of Ceylon, and made into sugar, called *jaggory;* the pith makes sago, and the bud is likewise eaten as a cabbage.

The best soil for the greenhouse species is a sandy loam.

CHAMÆROPS. (Fan Palm.)

Gen. Char. (*Polygamia Dicœcia.*) Spatha double, leathery, florets with bracts; calyx three-cleft; corolla of three petals; filaments dilated at the base.

The name is of uncertain derivation. Some of the species

are greenhouse plants in this country, and not difficult to cultivate. *C. humilis* is a native of the South of Europe, and is called the Dwarf Fan-Palm; this is a very pretty species for the greenhouse, as it has fine palmate fronds with spiny stalks; it will grow in the open air in Europe as far north as Nice; in the Edinburgh Botanic Gardens a specimen has lived for many years, protected slightly during the frosts of winter. *C. Hystrix* is called the porcupine, the stalks having long entangled prickles; *C. serrulata* is the saw-leaved Palm, and *C. Palmetto* has smooth stems; the three latter are from North America, and bear the greenhouse. *C. excelsa*, from Nepaul, *Guianensis* and *gracilis* from South America, require the stove. They should have sandy loam, and do best in moist heat.

HEMODORACEÆ.

Endogens, with the flowers more or less woolly, the sepals and petals in many cases undistinguishable, and united into a cylindrical tube. Stamens arising from the sepals and petals, either three and opposite the petals, or six; anthers bursting inwardly.—Herbaceous plants, with fibrous perennial roots, and permanent, sword-shaped leaves, which are mostly in two ranks. They are natives of many places, and some of the roots are edible.

ANIGOZANTHOS.

Gen. Char. (*Hexandria Monogynia.*) Flowers tubular, incurved, with a six-parted regular limb; stamens inserted into the mouth, ascending.

The name means, *to raise up* and *a flower*, as the flowers are raised up on long stalks. This is a genus of New Holland plants, of very extraordinary appearance; the roots are said to be nutritious when roasted, and the natives appear to like them. *A. flavida* and *rufa* have brownish-green flowers; *coccinea*, scarlet; *humilis*, crimson; *Manglesii*, scarlet-green; *pulcherrimus* is also a handsome species; these may be grown in the greenhouse, and will bear putting out in summer, except perhaps, the species *humilis*. To give an idea of the curious appearance that some of the species have, the following account of two, which may shortly become common, will be given: they were discovered by Mr. Drummond, in Australia, who calls *A. fuliginosa* "a real mourning flower, the upper portions of the stem and lower portion of the corolla being covered, as it were, with black velvet;" the flowers themselves are lemon-coloured and covered with hairs, those on the stem being found, on examination, to be like feathers. *A. tyrianthina* is quite as magnificent a species; it grows in marshes, stands three or

O. Jewitt lith.

Vincent Brooks Imp.

Anigozanthos tyrianthinum.

four feet high, and bears branches, and flowers clothed with the richest Tyrian purple-coloured down; the tube of the flower is rather long and curved, and within, the flower is of a delicate straw-colour, which contrasts well with the deep colour of the exterior. These two magnificent species it is to be hoped may get into cultivation in this country. The plants require to be kept dry in winter, to be repotted in spring, and then to be well watered during their period of growth; they prefer a light soil of peat, loam, and sand.

AMARYLLIDACEÆ.

Endogens, with six-parted flowers, six or more stamens, with the anthers turned inwards. Ovary three-celled. Leaves sword-shaped, with parallel veins. Generally bulbous plants.—Natives of many parts of the world, particularly the East and West Indies, and the Cape. The qualities of some poisonous, others produce edible roots.

GETHYLLIS.

Gen. Char. (*Hexandria Monogynia.*) Flowers six-parted, with a long thread-shaped tube; the spathe obliquely truncated.

The name is derived from the Greek for *to rejoice,* probably from the delicious scent of the flowers. This is a

genus of Cape bulbs, producing deliciously sweet white flowers, in June and July. The species are *spiralis, villosa, ciliaris, lanceolata, Afra,* etc. The leaves are narrow and long, some spiral, others flat. Soil, sandy peat and loam.

AMARYLLIS.

Gen. Char. (*Hexandria Monogynia.*) Flowers nodding, irregular, funnel-shaped, gaping; filaments curved downwards, unequal in proportion or direction; seeds numerous and flat.

The name means *resplendent.* The greenhouse species of this genus are not numerous, as the genus now stands, *A. Banksia,* from the Cape, with flesh-coloured flowers, being the principal, but those which have been separated under new generic names, will also be placed here. *A.* (*Sprekelia*) *formosissima* is the Jacobæa Lily, having handsome dark crimson flowers appearing in May and June, and continuing till September; *A. glauca* with crimson, and *Cybester* with greenish-crimson, both belong to the same division, and are natives of South America. *A.* (*Lycoris*) *aurea,* the golden-flowered, and *radiata,* with pink flowers, are natives of China, and are autumnal-flowering species.

A. (*Pyrolirion*) *aureum* and *flavum* have golden flowers, and are natives of Peru. From the Cape we have *A.* (*Imhofia*) *crispa,* with rose-lilac-coloured flowers, also *filifolia* with white; these flower from October to December, and will either flourish with frame or greenhouse shelter. *A.* (*Brunsvigia*) *laticoma, minor, multiflora, Josephinæ, striata, radula,* and *grandiflora,* are all natives of the Cape, and are very ornamental in the cool greenhouse, flowering from March to September, the flowers being crimson, scarlet, rose, or purple. *A.* (*Hippeastrum*) *elegans, Burghclerianum, concinnum,* and *anceps,* have elegant scarlet and white flowers, and *inconstans* scarlet and orange: the last has also many varieties with flowers of various colours, which are hybrids.

These beautiful flowering bulbs should have a rich sandy loam, and require large pots to flower well; they are increased by offsets, and also by seeds. Some cultivators recommend that the bulb should not be quite covered with the soil; they may be well supplied with water during the flowering season, but this should be discontinued when the leaves begin to fade; after these are dead, the bulbs should be kept very dry for a month or two, when they generally show that they require potting, by the point of the new plant appearing.

HABRANTHUS.

Gen. Char. (*Hexandria Monogynia.*) Flowers nodding, bell-shaped; stamens curved downwards, unequal, inserted into a fleshy rim at the base of the tube; stigma three-lobed.

Named from two Greek words meaning *delicate* and *flower*. There are several species of this genus, both hardy and half-hardy; the following require the greater warmth of the greenhouse:—*H. gracilifolius* and *bifidus*, rose-coloured; *versicolor*, blush-coloured; and *robustus*, *nobilis*, and *miniatus*, red-flowered; *Bagnoldi*, *concolor*, *hesperus*, and others, have yellow flowers: these are all South American bulbs. They require a mixture of vegetable earth, peat, and sand.

CRINUM.

Gen. Char. (*Hexandria Monogynia.*) Flower funnel-formed; edge divided into six parts, with a thread-like tube and a spreading recurved limb; sepals awl-shaped and channelled; seeds fleshy.

The name is the Greek for a *lily*. This is a very beautiful and extensive genus, producing many species for the greenhouse and stove, particularly the latter; those which flourish in the cooler air of the greenhouse are as follows:—*C. Au-*

strale, pedunculatus, and *flaccidum,* from Australia, with white flowers; *Australasicum* requires the stove, but some of its varieties may with safety be introduced into the greenhouse, as *angustifolium, arenarium,* and *blandum.* Then from the Cape we have *Capense, crassifolium, Herberti, variabile, Algoense, Caffrum,* and *riparium* having reddish-white flowers. Some other species or varieties have been raised by the care of cultivators, most of them having white flowers, and being very beautiful; indeed the whole genus is one of the most attractive, for the stem, leaves, and flowers are very stately. They require large pots, a rich loam and sand, and are propagated by offsets; after they have ceased flowering they should be kept dry, either in the pots, or laid for a month or two in a dry airy place.

CYRTANTHUS.

Gen. Char. (*Hexandria Monogynia.*) Flower incurved, tubular, clavate, six-cleft, segments ovate-oblong; filaments inserted into the tube, converging at the end.

The name means *curved* and a *flower.* There are several of these elegant bulbous Cape plants which flourish in our greenhouses; as *C. spiralis, collinus, ventricosus, angustifo-*

lius, and *odorus,* scarlet-flowered; *obliquus* and *striatus* have orange flowers mixed with green or red, others are flesh-coloured. They require sandy loam and peat, plenty of water when growing, but the bulbs to be kept dry after flowering.

CALOSTEMMA.

Gen. Char. (*Hexandria Monogynia.*) Flower funnel-shaped, with a six-parted limb; crown tubular, with a twelve-toothed mouth, the alternate teeth bearing anthers; ovary one-celled, two-seeded; style thread-shaped; stigma obtuse.

The word means *beautiful* and *crown,* from the beautiful crown of the flower. A genus of Australian bulbs worthy of a place in the greenhouse. *C. luteum* is yellow-flowered; *purpureum,* purple; *album,* white; and *carnea,* flesh-coloured: they flower from August to October. They do not require any peculiar cultivation beyond that usually given to bulbous plants.

CLIDANTHUS.

Gen. Char. (*Hexandria Monogynia.*) Flower funnel-shaped, irregular; stamens erect, included, united by their dilated bases; the short filaments two-toothed.

The name arises from the Greek for *delicate* and *flower*, from the delicate texture. *C. fragrans* is a South American plant, having elegant flowers of a pale yellow, which appear before the leaves: they have also fragrant scent.

PANCRATIUM.

Gen. Char. (*Hexandria Monogynia.*) Flower funnel-shaped, with a long tube; divisions six; cup twelve-cleft, membranous; stamens inserted on the edge of the cup.

The word is derived from the Greek for *all force*, from the powerful medicinal effects. *P. maritimum*, the Sea Daffodil, a native of the South of Europe; *Carolinianum*, from Carolina, *Illyricum* and *Canariense*, have white flowers, which are in great beauty from May to July, and are fragrant; these bulbs delight in light loam and rich vegetable mould; other species require stove culture.

DORYANTHES.

Gen. Char. (*Hexandria Monogynia.*) Flower six-parted; filaments shorter than the flower; anthers erect.

Named from the Greek for *spear* and *flower*. *D. excelsa* is called the Gigantic Doryanthes, from the flower-stem growing many feet high and then producing a handsome head of crimson flowers; the leaves are at the base, on the ground; unfortunately, with greenhouse culture, the flowers do not appear till the plant is ten or twelve years old; in the stove it flowers sooner. It requires sandy loam and peat.

ALSTRŒMERIA.

Gen. Char. (*Hexandria Monogynia.*) Divisions of flower six, campanulate or two-lipped, the two lower half-tubular at the base; stamens curved downwards or erect; stigmas three, linear; capsule three-valved and not opening.

The genus is named after Alströmer of Sweden. Many of the species are sufficiently hardy for the garden, though natives of South America; but *Hookerii*, *pulchra*, and the white variety of *Pelegrina*, look remarkably well in the greenhouse, producing as they do fine heads of brilliant flowers. After flowering, these plants should remain dry for a considerable time, and be well watered again when they are about to flower: they require a mixture of leaf-

mould and sandy loam, and are increased by parting the roots.

GRIFFINIA.

Gen. Char. (*Hexandria Monogynia.*) Flower six-parted, gaping; stamens drooping, with the upper one erect and away from the rest; seeds few, round, and fleshy.

Named after Mr. Griffin, a collector of bulbous plants. *G. Hyacintha* (formerly known as *Amaryllis Hyacintha*), *intermedia,* and *parviflora* were considered as stove-plants, but they bear the greenhouse, and are very ornamental; the flowers are blue, those of *Hyacintha* large, forming a head; the leaves are broad, with a flat stalk. They require the usual treatment of bulbs, and are Brazilian plants.

VALLOTA.

Gen. Char. (*Hexandria Monogynia.*) Flower vertical, regular; stamens regularly spreading; seeds numerous and flat.

The name is of doubtful meaning. *V. purpurea* is a Cape bulb, producing bright scarlet flowers of considerable size and beauty, and there are also two varieties, called the

larger and lesser *Vallota*. They look handsome in the greenhouse in May and April, at which time they are in flower. They are tolerably hardy, and will do well in the frame.

NERINE. (Guernsey Lily.)

Gen. Char. (*Hexandria Monogynia.*) Division of flowers six, spreading, wavy; stamens inclined downwards, unequal in direction and proportion; capsule few-seeded; seeds round, like peas.

Named after the daughter of Nereus. *N. Sarniensis*, the well-known Guernsey Lily, though originally from the Cape, is sufficiently hardy to bear the open ground in the summer; but as it is extremely ornamental, it should also find a place in the greenhouse: it is generally brought every year from Guernsey in July, when the bulbs are ready for potting, and in October they begin to flower, and make a great show for some time, as their red flowers are particularly handsome and very sweet-scented. *N. corusca*, scarlet-flowered; *venusta*, red; *versicolor*, lilac-flowered: these, and some others, as *Fothergillii*, *pulchella*, *flexuosa*, *undulata*, and *curvifolia*, are all worthy of a place in the greenhouse. They require rich loam and plenty of light. When the

flowers are over the bulbs should be dried, and replanted in July; but it is better to procure fresh bulbs at this season, as in this country they do not become mature, and generally fail to flower a second time.

AGAVE.

Gen. Char. (*Hexandria Monogynia.*) Flower erect, tubular or funnel-shaped; filaments erect, longer than the flower; capsule triangular, many-seeded.

The word means *admirable,* and is particularly applicable to this noble genus of plants: they are natives of America within the tropics. *A. Americana* is erroneously called the American Aloe, but the Aloes belong to the Order *Liliaceæ.* This is a well-known species, and very attractive when in flower, the stem being then often more than twenty feet in height, and its numerous branches bearing large bunches of greenish-yellow flowers. It is said only to flower once in a hundred years; but this is a mistake, the truth being that the plant flowers but once, but the period may be hastened by culture. It has been introduced into this country more than two hundred years. One specimen was in bloom in 1849, in the Apothecaries' Garden at Chelsea, its age not

being known, but it was of full size. In the 'Journal of Botany,' speaking of this specimen, there is the following account:—"Its flowering-stem grew to the height of nineteen feet six inches; the stem had twenty-four branches, and these were again subdivided into eight secondary branches, each terminated by a cluster of flowers; the number of flowers may be estimated at about four thousand." The growth of the flowering-stem is very rapid and vigorous when once it begins, and the same rapid growth is exhibited in other species also, for Sir W. Hooker records in the 'Journal of Botany' that a specimen of *A. vivipara* in Kew Gardens produced a flowering-stem "resembling a gigantic shoot of young asparagus, which grew at first at the rate of two feet in the twenty-four hours." *A. Americana* has become almost naturalized in Italy, Sicily, and Spain, where it is planted in vases as an ornament to terraces; but here it generally requires shelter in a dry greenhouse: the plant is stemless, and the leaves toothed and spiny. The other species, which can also be cultivated there, are *C. Milleri, atrovirens, Mexicana, sobolifera, potatorum*, etc., from different parts of South America and Mexico.

In warm climates the plants are supposed to flower when about fifteen years old, and then, putting out offsets, to die.

In England they have been known to be sixty years old before this happens, and probably it is for want of warmth and nourishment that they are so long before they arrive at their maturity: to hasten this period, it is now recommended to give them a light sandy loam, with a third of lime-rubbish, to repot them frequently, to expose them to the outer air in summer, and only to give water when dry.

IRIDACEÆ.

Endogens, with flowers having calyx and corolla either separate or adhering, sometimes irregular, the three petals occasionally very short. Stamens three, the anthers turned outwards. Ovary three-celled. Leaves embracing each other, and on two sides of the stem only.—Natives of Europe, America, and the Cape. Flowers beautiful; properties medicinal.

ARISTEA.

Gen. Char. (*Triandria Monogynia.*) Flower superior, six-parted, regular; after flowering twisting spirally, and not falling off; capsule three-celled, many-seeded.

Named from *arista,* a point or beard, the leaves being bearded. Cape plants adapted to the greenhouse. *A. cyanea,* the woolly-headed, *pusilla,* flat-stemmed, and *capitata,*

have blue flowers; *melaleuca* has bluish-black, and *spiralis* whitish-brown flowers. A division of this genus, sometimes known under the name of *Bobartia*, contains three species which are introduced into the greenhouse, as *B. gladiata*, *spathacea*, and *aurantiaca*, with yellow or orange flowers. The soil should be turfy peat and loam.

WITSENIA.

Gen. Char. (*Triandria Monogynia.*) Flower tubular, with a six-parted limb; stigma slightly trifid or emarginate; capsule three-celled, many-seeded.

Named after Mr. Witsen, a Dutch patron of botany. Cape plants for the greenhouse, flowering in the winter and spring, and being of easy cultivation in peat and sand. *W. maura* has orange downy flowers; *corymbosa*, blue, and *ramosa*, yellow and blue; they are natives of sandy plains, and should therefore have no water whilst they are dormant.

PARDANTHUS.

Gen. Char. (*Triandria Monogynia.*) Flower six-parted, regular

and equal; stamens three; capsule many-seeded, attached to a central loose receptacle.

The flower is spotted like a leopard, whence the name. *P. Chinensis*, a native of China, is a showy, spotted orange flower, and looks well in the greenhouse, flowering in June. *P. Nepalensis* is also handsome, and of an orange-colour. Though these bulbs are from hot climates, they bear the outer air, and do well in the border in a dry sheltered spot.

GLADIOLUS. (Corn Flag.)

Gen. Char. (*Triandria Monogynia.*) Spatha two-valved; flowers tubular, with a six-parted irregular limb; stamens three, ascending; stigmas three; seeds winged.

The name is derived from *gladius*, a sword, from the shape of the leaves. This is a beautiful genus of Iridaceous plants, of which many species are grown in the garden, being quite hardy; others require shelter in the winter in a frame, but a few should be introduced also into the greenhouse, adding greatly to the show of flowers in spring; as there are species of all hues, the colours may be chosen according to taste, or such as are wanted to make

a variety; brilliant scarlets, rose-colours, purple, white, and orange, all may be selected by applying to the list of a good dealer. For autumn flowering, *G. Natalensis* is a very splendid plant, and is scarcely to be surpassed by any species; its flowering stem rises erect, about three feet high, and produces a spike of deep orange-scarlet flowers, each being three or four inches long: it is a native of the Cape. These plants should have rich and well-drained soil.

IXIA.

Gen. Char. (*Triandria Monogynia.*) Spatha two-valved; flower with a slender tube and regular limb; stigmas three, narrow, recurved; capsule globose and ovate.

The name is derived from the Greek for *to fix*, from the sticky nature of the roots. This is a genus of Cape bulbs, of great beauty, and producing flowers of many hues, as pink, rose, crimson, yellow, orange, cream-colour, white, and variegated, so that they are worthy of a place in the greenhouse, though they are sufficiently hardy also to bear planting in the garden. It is recommended that when the leaves are dead the bulbs should be cleaned, dried, and put away in dry drawers until October, when they must be

repotted in a mixture of equal parts of loam and peat, and be placed in a cold frame till the leaves appear, then they may be removed to the greenhouse, and moved into larger pots if necessary. Liquid manure is of great use to them in ensuring fine flowers.

ARACEÆ.

Endogens, with a simple spadix or spike. Calyx and corolla absent. Stamens of barren flowers numerous, very short; fertile flowers at the base of the spadix; these are enclosed in a white, green, or purple spatha.—Herbaceous plants, natives of the tropics principally; some useful in medicine, others poisonous.

CALLA, OR RICHARDIA.

Gen. Char. (*Heptandria Monogynia.*) Spatha ovate, covering the spadix; calyx and corolla none; fruit succulent.

Calla is a name given by Pliny. The *Calla* or *Richardia Æthiopica*, a native of the Cape, has been introduced into this country more than a century, and is well known in the greenhouse; its noble white spatha and very handsome leaves make it a very valuable addition, forming a contrast to other plants very agreeable to the eye. The only par-

ticular attention it requires is to keep it constantly supplied with water, of which it imbibes a great quantity; indeed it will grow altogether in water, if such a situation can be procured for it. It is not generally known that this plant will bear being planted out in summer, provided it be well supplied with water; in winter it must either be taken into the greenhouse or frame, or its root be kept dry with ashes heaped over it; if planted in water, its roots will be sufficiently protected from cold by the water itself: it is increased by offshoots from the roots in September, which should be planted in sandy loam and leaf-mould; the young plants must be kept in the greenhouse till they are stout, as they do not bear the cold well. This genus is sometimes included in the Order *Orontiaceæ*.

LILIACEÆ.

Endogens, with a naked flower, flat when withering. Calyx and corolla coloured alike, regular or nearly so, occasionally adhering in a tube. Stamens six.—Herbaceous plants, with narrow, parallel-veined leaves, and bulbous, tuberous, or fibrous roots; natives principally of temperate climates; the roots of some are edible; the fibres useful for making cordage.

AGAPANTHUS. (African Lily.)

Gen. Char. (*Hexandria Monogynia.*) Flower funnel-shaped, regular, six-parted; stamens drooping.

The name is derived from the Greek for *to love* and a *flower,* and these are really lovely plants, generally known by the name of African Lilies, as they are brought from the Cape. *A. umbellatus* bears a large umbellated head of blue flowers, which appear early and last some time; it was introduced here in the year 1692, and has two varieties, the white-flowered, and that with striped leaves. *A. præcox* and *minor* have also blue flowers. These beautiful plants are said to be successfully cultivated without much trouble by planting them in good soil in large pots, and, after the flowering is over, cutting the old stems down and placing them in a cold shady spot till November, when they may be moved to their winter quarters.

BLANDFORDIA.

Gen. Char. (*Hexandria Monogynia.*) Flowers tubular, with a six-lobed edge; stamens inserted on the tube; anthers fixed to a base like an extinguisher.

Named after the Marquis of Blandford. Beautiful New Holland plants, and worthy of being cultivated in the greenhouse, but rare. *B. nobilis* has fine orange-scarlet drooping flowers, which appear in July and August; *grandiflora* has also flowers of the same hue, *punicea* has crimson, and *marginata*, copper-coloured flowers.

ALOE.

Gen. Char. (*Hexandria Monogynia.*) Flower tubular, with a six-cleft spreading mouth, and honey at the bottom of the tube; filaments inserted into the receptacle; capsule three-celled, three-valved, many-seeded.

The name of this genus is supposed to be derived from the Arabic. The principal locality for this singular tribe of plants is the Cape; the West Indies, Mexico, and China yielding a few. Some of them bear both leaves and flowers which are strikingly handsome, others being only sought out for their highly curious appearance; a few attain the height of trees, but most of them are small, odd-looking, succulent plants, and all are evergreen. They have been divided into several genera, but as they still all go by the name of Aloes, they will be placed under one head here,

and as there are above a hundred and fifty species that can be reared in the *dry* greenhouse, only a few can be mentioned. *A. Socotrina* produces the medicinal drug known as aloes; it has long sword-shaped leaves, somewhat spotted, the edges white, with straight spines, these form large heads; the stalks grow three or four feet high, and have from one to four of these heads of leaves; the flowers are in long spikes, and are scarlet tipped with green. *A. arborescens* is called the Tree Aloe, it has scarlet flowers; *spicata* is the white-spotted; *flavispina,* the yellow-spined; *vulgaris,* the common yellow-flowered of the West Indies; *Chinensis,* the Chinese species; *variegata* is called the Partridge-breasted Aloe; it is a small species, but is remarkable for its triangular leaves, which are veined and spotted like the feathers of a partridge's breast; it has salmon-coloured flowers; *echinata* is called the Great Hedgehog Aloe; *suberecta,* the lesser; and *acuminata,* the Middle Hedgehog; these have prickles on the leaf as well as on the edge; their flowers are orange-red. What were formerly called "Tongue-leaved Aloes" are now comprised under the generic name of *Gasteria,* and are all natives of the Cape, and generally distinguished specifically by their leaves, being either dark, marbled, thick, or short-leaved; blunt, soft,

narrow, warted, or keel-leaved, etc. etc. The genera *Haworthia* and *Apicra* contain also many from the Cape.

It is considered that sandy loam and lime-rubbish is the best soil for these plants, good drainage, and not much water; they flower better, and are stronger for being exposed to the outer air in the summer, in a sunny situation, and during that time they should have very little water. In September they will look very shabby and starved, when they should be again returned to the greenhouse. In the spring, in March, they must be repotted with a little fresh earth, and, if possible, placed in a stove, and more water given; this plan will generally make them show flower. Some cultivators think they flourish best with rich soil but less water, though this is contrary to the general opinion.

YUCCA. (Adam's Needle.)

Gen. Char. (*Hexandria Monogynia.*) Flower bell-shaped, spreading; capsule from three to six-celled, with a hole at the end.

Called in St. Domingo *Yuca*, whence the name; these plants are also known by the name of Adam's Needle, and form a beautiful genus almost peculiar to America. In ge-

neral character they greatly resemble a small Palm, the numerous leaves all proceeding from the top of the stem, as do those of the Palm tribe, and the flower rising above them; the latter has a beautiful effect, being a handsome spike of greenish-white blossoms; the leaves of most of the species have their edges clothed with strong brown or white twisted threads, which give them a peculiar appearance. *Y. gloriosa, aloifolia, filamentosa, angustifolia,* and *superba* will grow in this country in the open air, but are better in the conservatory. An enthusiastic cultivator of these beautiful plants gives the following glowing account of his favourites, which is extracted from the Memoirs of Margaret Fuller Ossoli, to whom the account was given; it will not be out of place in these pages:—"I had kept these plants of the *Yucca filamentosa* six or seven years, though they had never bloomed; I knew nothing of them, and had no notion of what feelings they would excite. Last June, I found in bud the one which had the most favourable exposure. A week or two after, another, which was more in the shade, put out flower-buds, and I thought I should be able to watch them one after the other; but no! the one which was most favoured waited for the other, and both flowered together at the full of the moon. This struck me as singular, but as

soon as I saw the flower by moonlight, I understood it. This flower is made for the moon, as the Heliotrope is for the sun, and refuses other influences, or to display her beauty in any other light. The first night I saw the flower, I was conscious of a peculiar delight, I may even say, rapture. Many white flowers are far more beautiful by day; the Lily, for instance, with its firm, thick leaf, needs the broad light to manifest its purity. But these transparent greenish-white leaves, which look dull in the day, are melted by the moon to glistening silver; and not only does the plant not appear in its destined hue by day, but the flower, though as bell-shaped, it cannot quite close again after having once expanded, yet presses its petals together as closely as it can, hangs down its little blossoms, and its tall stalk seems at noon to have reared itself only to betray a shabby insignificance. Thus too with the leaves, which have burst asunder suddenly like a Fan Palm, to make way for the stalk; their edges in the daytime look ragged and unfinished, as if Nature had left them in a hurry for some more pleasing task. On the day after the evening when I had thought it so beautiful, I could not conceive how I had made such a mistake. But the second evening I went out into the garden again, in clearest moonlight I stood, my flower more beau

tiful than ever. The stalk pierced the air like a spear; all the little bells had erected themselves around it in most graceful array, with petals more transparent than silver, and of a softer light than a diamond: they seem to have been made for the moon's rays. The leaves, which had looked ragged by day, now seemed fringed by the most delicate gossamer, and the plant might claim with pride its distinctive epithet of *filamentosa*. I looked at it till my feeling became so strong that I longed to share it; the thought which filled my mind was, that here we saw the type of pure feminine beauty in the moon's own flower. I have since had further opportunity of watching the *Yucca*, and verified these observations, that she will not flower till the full of the moon, and chooses to hide her beauty from the eye of day."

The following species belong exclusively to the greenhouse:—*Y. aletriformis*, from the Cape; *spinosa*, *gracilis*, *longifolia*, *serratifolia*, *graminifolia*, *lætevirens*, and *pitcairnifolia*, from Mexico. They require a loamy soil.

LILIUM. (Lily.)

Gen. Char. (*Hexandria Monogynia.*) Divisions of flower six,

bell-shaped, and generally reflexed, with a longitudinal honey-line; valves of the capsule connected by a mesh of hairs.

The name is very applicable to this beautiful genus, as it is derived from the Celtic word *lli*, which means whiteness. The hardy species are well known in the garden, and may be admitted into the greenhouse, where this genus is a favourite, when required for early flowering. *L. giganteum* is often thus treated, its splendid white flowers, spotted with crimson, being particularly attractive. *L. alstrœmerifolium* has scarlet and black flowers; *volubile*, crimson; *Wallichianum* is also a handsome greenhouse species; *Thomsonianum*, with red flowers, is another from India; *L. longiflorum* and *speciosum*, though now hardy, are worthy of a place in every greenhouse, from their very showy appearance, and *L. lancifolium* should also not be omitted.

In winter the bulbs may be left in the pots, and kept in a cool place, but secured from frost; in spring they should be repotted in turfy peat, loam, and sand, placed in a cool pit, and water given them as they show flower, when they may again be placed in the greenhouse.

O. Jewitt. lith.

Vincent Brooks Imp.

Lilium giganteum.

DIANELLA.

Gen. Char. (*Hexandria Monogynia.*) Divisions of flower six, spreading; filaments thickened at the end; berry three-celled, many-seeded.

The name is a diminution of Diana, as this genus is found in forests. Two species, *ensifolia* and *nemorosa*, from the East Indies, require the heat of the stove, but *cærulea*, *revoluta*, *congesta*, *lævis*, *strumosa*, *longifolia*, and *divaricata*, may be introduced into the greenhouse; most of them have blue flowers, which they produce from May to August.

PHORMIUM. (Flax Lily.)

Gen. Char. (*Hexandria Monogynia.*) Divisions of flower six, the three inner the longest; stamens ascending and protruding; capsule oblong, three-cornered; seeds compressed.

Named from the Greek for *basket*, as the leaves are used in the manufacture of baskets and matting. *P. tenax* is the only species, and is a native of New Zealand, where it is extensively used by the natives instead of flax; the plant is handsome and resembles an Agave in appearance; the leaves are Iris-like, and the flowers are orange; it is a handsome

and curious plant for the greenhouse, requiring a light rich soil, and is increased by offsets.

ANTHERICUM.

Gen. Char. (*Hexandria Monogynia.*) Divisions of flower six, spreading; filaments bearded; capsule ovate, seeds angular; leaves succulent, hollow like a pipe.

A name for the Asphodel, which this genus resembles. The leaves are fleshy and the flowers principally white. *A. glaucum* is a South American plant; the following are from the Cape:—*albucoides, filifolium, fragrans, vespertinum, undulatum, pilosum, longifolium, revolutum, floribundum,* etc.; as they have fleshy leaves, they require to be kept tolerably dry. The genus *Bulbine* containing many species for the greenhouse, is by some writers considered to belong to *Anthericum.* Those from the Cape have yellow flowers, as *aloides, ciliata, frutescens, longiscapa,* and *suavis; planifolia,* with rose-white flowers, is a native of the South of Europe; the flowers are both showy and fragrant. The soil should be sandy loam, well drained.

ARTHROPODIUM.

Gen. Char. (*Hexandria Monogynia.*) Divisions of flower six, spreading, the three inner wavy at the edge or fringed; filaments bearded; capsule nearly round.

Named from two Greek words for *joint* and *foot*, as the footstalks of the flower are jointed. Handsome plants for the greenhouse; of the following species, *A. cirrhatum* is from New Zealand; *paniculatum*, *fimbriatum*, and *minus*, white-flowered, and *pendulum*, violet-coloured, from Australia; *strictum* also, white-flowered, is from Van Diemen's Land.

THYSANOTUS.

Gen. Char. (*Hexandria Monogynia.*) Flowers six-parted, spreading, with the inner segments fringed. Stamens drooping, filaments smooth; ovary with two-seeded cells.

Named from the Greek for a *fringe*, from the calyx being fringed. This is an elegant genus for the greenhouse from Australia and Van Diemen's Land. The species *tuberosus*, *elatior*, *isantheris*, and *junceus*, have blue flowers; *tenuis* and *proliferus*, purple flowers; they have grass-like leaves. The best soil is sandy loam and peat.

XANTHORRHŒA.

Gen. Char. (*Hexandria Monogynia.*) Flower six-parted; filaments flat and naked; capsule three-cornered; seeds two.

The name is derived from the Greek for *yellow* and *to flow,* from the yellow gum produced by *X. arborea,* which plant is sometimes introduced into the greenhouse; it has long grass-like leaves, and long spikes of white flowers. The following species are more hardy, and will stand the outer air in the summer, *Australis, hastilis, media, minor,* and *bracteata;* they are all from Australia, where the natives call them "Grass Gum-trees," and eat the inner portion either raw or roasted, taking off all the outer leaves. The grass-like leaves, and tall spikes of flowers, it is said, create an amusing variety in the otherwise monotonous scenery of Australia.

HYACINTHUS. (Hyacinth.)

Gen. Char. (*Hexandria Monogynia.*) Flower erect, six-cleft, with equal segments, not divided to the base; stamens inserted in the middle of the flower; cells of capsule two-seeded.

The name is derived from the fable that Hyacinthus was killed by Apollo, and changed into this flower. *Hyacin-*

thus orientalis is a well-known plant in our gardens, and also in rooms, where it will flower, by being placed in water and in a warm atmosphere; this renders it particularly valuable in the dull season of winter. Those who possess a greenhouse may have a profusion of them, and if they are managed properly as to the period of planting, there may be a constant supply in full beauty for the room for some weeks in January and February. These fine bulbs have flowers of various hues; as dark-red, and bright-red; blush, flesh-colour, rosy-red and pink; blues of various shades, from sky-blue to dark-blue; and also of the purest white. From a list, a choice may be made, and care must be taken to have them of good sorts, and sound bulbs, or the grower will meet with disappointment. The bulbs should be round for growing in glasses, as they fit better, and are more steady, and they should have no side-shoots, only one in the centre. When they are placed in glasses, which may be from November to January, for a succession, the water (which ought to be soft) should only slightly touch the bottom of the bulb, they may then be put in a dark place, which forces the roots to grow instead of the leaves, and ensures greater strength in the plant; this requires about three weeks. At the end of this time the water should be

changed, giving sufficient to cover the lowest part of the bulb, which should be cleaned from mould; they may now be placed in the light in the greenhouse, and the only care they require is to keep them well supplied with water, which they absorb in considerable quantities; when the flower appears the water should be changed every fortnight, and care be taken that it is of the same temperature as that which is emptied away; half a spoonful of guano added each time, will greatly improve the flower. Another plan is to place them in a cold frame for a fortnight, and then remove them to the greenhouse or room, for flowering. When the beauty of the flower is over, the bulbs should be planted in the garden to ensure their being perfect for next year; they ought to remain till their leaves are faded, when they may be taken up and dried. These plants do not bear forcing two years in succession, but the second year do very well in pots, planted in November, and treated as before; in this way they make a brilliant show. Another plan is to place them in pots or vases, filled with green moss, which is always to be kept moist, by sprinkling it with water every day; this is a pleasant plan for a room, as the vase is much less heavy than when filled with earth, and they grow in it equally well. The *Crocus* may be made to flower in the same way, and

looks very pretty peeping through the green moss, the bright yellow contrasting well with the green; a few pots of this common plant are quite worthy of a place in the greenhouse, and they serve to fill up vacant places remarkably well. The *Narcissus* and *Jonquil* also may be treated in the same way, and when their beauty is over, may be put into the garden, where they will flower the following spring. Tulips too should be introduced, for they will flower from December for some time; they must be grown in mould or moss, and be well watered. If a few new bulbs of these four genera are obtained every autumn, treated in this way in the greenhouse for the first season, and then transferred to the garden, the supply will be kept up, and a constant variety obtained.

Class III.* EXOGENS.

Increase of new wood taking place at the circumference, always concentric. Leaves net-veined. Seed-lobes two or more; seeds enclosed in seed-vessels.

* Seventh Class of Lindley.

Subclass I. DICLINOUS EXOGENS.

Stamens and pistils in separate flowers.

CASUARINACEÆ.

Exogens, with the flowers in spikes each with a single bract; barren flowers whorled about the articulations of the jointed stems; fertile flowers in dense heads, and the stem not jointed.—Branching, weeping trees, with jointed shoots; leaves none, but in their place short, toothed, ribbed sheaths. Australian trees principally, timber valuable.

CASUARINA.

Gen. Char. (*Monœcia Monandria.*) Barren flower—catkin filiform; calyx two-valved, and no corolla; fertile—catkin globose; calyx an ovate scale, no corolla; capsule two-valved, one-seeded, seed winged at the end.

The name probably arose from the resemblance of this remarkable genus to the feathers of the Cassowary, a native also of Australia. The aborigines of that country call these trees "Club-wood," from the timber being useful to them for making their warlike instruments; they are very singular in appearance, the branchlets (for there are no leaves) hanging down like long horses' tails, sometimes a foot and a half long, and jointed in the same way as our common

Equisetum. A few species have been introduced into the greenhouse here as curiosities: as *C. equisetifolia, nodiflora, glauca, quadrivalvis,* etc. etc., from Australia, and *muricata,* from the East Indies.

MYRICACEÆ.

Exogens, with the stamens and pistils in different flowers, and in catkins; the stamens are from two to eight, generally in the axil of a scale-like bract; of the fertile flower the ovary is one-celled, surrounded by several scales. Fruit drupaceous, often covered with waxy secretions. The leaves are alternate and simple.—Aromatic, leafy shrubs or small trees, covered with resinous glands and dots; found in temperate parts of North America, the tropics of South America, the Cape, and India.

MYRICA. (Candleberry Myrtle.)

Gen. Char. (*Dicœcia Tetrandria.*) Barren flower—scales of the catkin concave; fertile the same, the styles two, and drupe one-celled, one-seeded.

The name is said to be derived from the Greek for *to flow,* because the plants are found on inundated spots. Some of the species of this genus are hardy; a few require the greenhouse, and are sometimes introduced, as they are

rather ornamental,—*M. quercifolia, cordifolia, serrata, laciniata, Æthiopica, segregata, esculenta,* etc.; the flowers are not striking, being of a brownish hue. These plants grow well in peat soil, and should be kept moist.

MORACEÆ.

Flowers very inconspicuous, collected in heads or spikes or catkins; the stamens of the barren flowers are inserted into the base of the calyx, and opposite its segments. Fertile flower with the calyx divided into from three to five-parts; ovary one-celled generally. Fruit small, nuts enclosed within a succulent receptacle or collected into fleshy heads.—Trees or shrubs with a milky juice; leaves lobed and rough, with large stipules; natives of temperate and tropical latitudes. Indian-rubber, figs, and mulberries, are produced by this Order.

FICUS. (Indian-rubber, Fig, etc.)

Gen. Char. (*Polygamia Diœcia.*) Common receptacle turbinate, closed, and fleshy; fertile flower—calyx five-parted; corolla none; ovary one, seed one; barren flower—calyx three-parted; corolla none; stamens three.

The name is similar in almost all languages, but the derivation is uncertain. *Ficus Carica* is the Fig-tree of our

gardens, and is the only hardy species of the genus; many are stove-plants, natives of the East, but a few can be cultivated in the greenhouse, as the *F. elastica*, the Indian-rubber, and *macrophylla*, the large-leaved; both these plants have fine smooth shining leaves, which make them attractive; the flowers are green. *F. stipulata*, a creeping, ivy-like plant, and *pumila*, from China, also *virgata*, from the East Indies, will bear the cool air of the greenhouse, or the window of rooms.

EUPHORBIACEÆ.

Exogens, with flowers axillary or terminal. Calyx inferior, with glandular or scaly internal appendages. Corolla either consisting of petals or scales, or absent. Stamens of the barren flower either definite or indefinite. Fertile flower having the ovary free, sessile, or stalked, from one to three-celled. Fruit generally three-celled, splitting, and separating with elasticity.—Trees, shrubs, or herbaceous plants, abounding in acrid milk, which has a poisonous principle; leaves generally simple.

EUPHORBIA. (Spurge.)

Gen. Char. (*Dodecandria Trigynia.*) Involucre one-leaved, ventricose, regular; flowers naked, grouped together; fertile floret surrounded by many one-stamened barren florets.

This genus is said to be named after Euphorbus, the physician, who first found out the medicinal qualities; they are very singular-looking plants, some of them assuming very grotesque shapes, the stems being cylindrical, or like columns, angular, or covered with tubercles, and without leaves; of these forms *officinarum, Canariensis, heptagona, enneagona, cereiformis, meloformis, mammillaris, polygona, stellæspina,* etc., are all introduced into the greenhouse; besides these there are the great Medusa's Head, *E. Caput-Medusæ,* and several others somewhat similar, as *bupleurifolia, tessellata, procumbens, fructus-spini;* most of these species have the flowers yellowish or green, in groups of from one to three together; those with regular leaves have the flowers axillary, or in terminal umbels, and the colours are various, as green, yellow, crimson, etc. *E. atropurpurea* has deep blood-coloured bracts and floral leaves, and the rest of the foliage is of a glaucous green. The best soil for these succulent plants is sandy loam and lime-rubbish; they strike readily by the pots being put into a good heat.

CLUYTIA.

Gen. Char. (*Dicœcia Gynandria.*) Barren flower—calyx five-

leaved; petals five; disc glandular; stamens inserted into the rudiment of an ovarium; fertile flower—styles three; capsule three-celled; seed one.

Named after a professor of botany at Leyden. A genus of greenhouse plants introduced from the Cape, but of no great beauty; the species are *heterophylla, pulchella, patula, tomentosa,* and *pubescens,* straw-coloured; *alaternoides, ericoides, polifolia, daphnoides,* and *polygonoides,* white-flowered.

CUCURBITACEÆ.

Exogens, with the flowers having the calyx five-toothed, sometimes obsolete. Corolla five-parted, scarcely distinguishable from the calyx, very cellular, with strongly-marked veins, sometimes fringed. Of the barren flower, the stamens are five, inserted on the corolla; in the fertile—ovary adherent, one-celled. Fruit more or less succulent; seeds flat.—Annual or perennial plants, with brittle stems, climbing by tendrils; leaves usually palmate; natives of hot countries principally; many species useful as food, as the cucumber, melon, and vegetable marrow.

BRYONIA.

Gen. Char. (*Monœcia Syngenesia.*) Barren flower—calyx-leaves

five, dentate; corolla five-cleft; filaments three; anthers five; fertile flower—style trifid; berry inferior, globose, many-seeded.

The name arises from the Greek for *to grow rapidly*. The following climbing plants of this genus are introduced into the greenhouse; they all have straw-coloured flowers and handsome lobed leaves. *B. scabra, punctata, cordata, trilobata, pinnatifida,* and *dissecta,* from the Cape; *verrucosa,* from the Canaries; *epigæa,* from the East Indies; *ficifolia,* from Buenos Ayres; *Africana* and *Cretica*. These plants have very large roots, and grow rapidly, so that they are valuable additions to the greenhouse, where verdure is required, but the flowers are not striking.

BEGONIACEÆ.

Exogens, with flowers in cymes, generally pink. Calyx coloured; in the barren flower two of the divisions are within the other, and smaller; in the fertile there are five divisions, two smaller than the rest, or eight, of which four are like petals. Stamens indefinite in number, distinct, or combined into a solid column; anthers collected in a head. Ovary adherent, winged, three-celled. Leaves alternate, rarely entire, oblique at the base, with large membranous stipules.—Herbaceous plants, or succu-

lent undershrubs, with an acid juice. Common in the East and West Indies and South America.

BEGONIA.

Gen. Char. (*Monœcia Polyandria.*) Barren flower—calyx none; petals four, two larger than the others; stamens numerous; fertile—petals four or six; styles three, bifid.

This genus is named after Begon, a promoter of botany. Most of the species can only be grown in the stove in England, and form a very beautiful genus there, being ornamental both in flower and leaf. *B. discolor*, a Chinese plant, is however well known in the greenhouse, its leaves alone making it a very handsome addition to any show of plants; they are large, heart-shaped, oblique at the base, and crimson underneath; the flowers are elegant, drooping, and of a very delicate pink colour: they do not fade, but drop off when dead. After the flowers are over, water must gradually be withheld, the stem then by degrees falls to pieces, and the plant disappears; the pot should then be set in a perfectly dry place, and kept from frost: in February the plant shows signs of life again, and may be repotted in good loamy soil, and well watered. Little buds appear on the stem at the joints of the leaves, these drop on to the

ground when ripe, and should be covered with soil; in spring they produce young Begonias, which however do not flower the same year, but the following, and should be treated like the older ones. Few plants surpass this in elegance and beauty, and it is particularly adapted for the window of a room, as it looks remarkably well standing alone, from the drooping, flesh-coloured flowers and very handsome leaves.

Subclass II. HYPOGYNOUS EXOGENS.

Having stamens and pistils generally in the same flower. Stamens below the ovary, and entirely free from calyx and corolla.

PASSIFLORACEÆ.

Exogens, with coroneted flowers; the petals five, imbricated, standing on the calyx. Stamens five, on the stalk of the ovary; a row of filamentous processes forming the crown in the centre. Leaves often glandular.—Herbaceous plants and shrubs, usually climbing; properties rather dangerous, though some of the fruits are edible; natives principally of America, and particularly the South.

PASSIFLORA. (Passion Flower.)

Gen. Char. (*Monadelphia Pentandria.*) Calyx five-parted, co-

loured; petals, five or none, inserted into the calyx; crown of many filiform rays; fruit stalked and fleshy.

Named from the supposed resemblance in the appendages of the flower, to the passion of Christ. Several of these interesting and beautiful plants are hardy; about a dozen require the greenhouse, and many more can only be cultivated here in the stove. Those for the greenhouse are as follows:— from North America we have *maculata, gracilis,* and *angulata,* the flowers of which are white; from South America, *heterophylla* (an annual), *punctata, ligularis, incarnata, angulata, verrucifera, edulis, filamentosa, palmata,* etc., with variously coloured flowers; from China we have *Chinensis,* with blue flowers. There are also several hybrid species:— *cæruleo-racemosa,* purple; *alata, racemosa,* rose-coloured; and *sanguinea,* crimson. *P. elegans* is a splendid species, from South America, and is said to succeed in the greenhouse; its scarlet petals and upright cup-like crown, of a lavender hue, render it very attractive and singular. *P. aurantia* and *adiantifolia,* from Norfolk Island, with orange and yellow flowers, and *Herbertiana,* from Australia, with straw-coloured flowers, form the new genus *Disemma;* these are also greenhouse climbers, and should be planted in good loamy soil, with plenty of room for their roots. *P.*

pinnatistipula, grandis, manicata, mollissima, princeps, splendens, sanguinea, etc., are now formed into the genus *Tacsonia,* and are very elegant greenhouse climbers.

CRASSULACEÆ.

Exogens, with flowers having either many petals or only one, and a calyx of from three to twenty parts, more or less united. Stamens inserted with the petals, either equal in number and alternate with them, or twice as many, those opposite the petals being the shortest, and arriving at perfection after the others. Leaves entire or pinnated.—Succulent herbs, or shrubs; natives of many parts of the world, in the driest situations; properties medicinal.

CRASSULA.

Gen. Char. (*Pentandria Pentagynia.*) Flowers inferior; calyx five-leaved; petals five; scales five, bearing honey at the base of the ovary; capsules five.

The name is derived from the Latin *crassus,* thick, from the character of the leaves and stems. The greenhouse species are numerous, and, being Cape plants, require a dry air. The leaves are thick, broad, smooth, and often imbricated; the flowers are principally white, a few rose-coloured,

O. Jewitt lith.

Vincent Brooks Imp.

Tacsonia mollisima.

as the species *portulacea, telephioides, cordata,* and *spathulata; arborescens* has purple flowers. *C. concinna, liguli-folia, conspicua,* and *corymbosula* now belong to the genus *Purgosea,* of which division there are other species also. *Kalosanthes,* now a favourite genus, contains *C. coccinea,* the scarlet-flowered, which has also a white variety, *versicolor, capitata, odoratissima,* and *jasminea,* besides *media, bicolor, flava, cymosa,* and *biconvexa;* these are all from the Cape, and are useful additions to the greenhouse, for they require but little care, and are easily raised from cuttings, if laid for a few days to dry before planting. They grow best in sandy loam and brick-rubbish.

The genera *Globulea* and *Cyrtogyne* have also many of the characteristics of *Crassula,* and afford some species for the greenhouse, all bearing white flowers.

The species *Kalosanthes coccinea* and its varieties make a very pretty bed in the garden in the summer, for they will at that period bear the open air very well, and their fine heads of brilliant flowers make a great show. To produce them in great perfection, it is advisable to take cuttings in March, and after leaving them to dry for a few days, to pot them in small pots, plunge them in a hotbed frame, and to give no water till they begin to grow; when they are

well rooted they should be moved to larger pots, and placed in the frame, giving them air and water ; as winter advances, give them a little more heat till the following March, when those that are intended for bloom early, may be plunged into a hotbed frame, which soon causes the production of a number of flowers ; they may then be placed in the greenhouse, and if well sheltered will remain long in flower ; in June some may be turned out into the garden, and will continue a mass of bloom for several weeks.*

The other species and varieties for the greenhouse are as follows :—*angelina, miniata, nitida, versicolor, Phœnix, superba, Beauty of Charonne,* etc.

COTYLEDON.

Gen. Char. (*Decandria Pentagynia.*) Calyx five-cleft ; corolla of one petal, five honey-scales at the base of the ovary ; capsules five.

The name means *a vessel* or *cup*, from the hollow form of the leaf. A genus principally of Cape plants, of a succulent nature, requiring a dry greenhouse to be healthy ; the flowers

* Floricultural Cabinet.

are not particularly striking, and are either green, yellow, violet, or purple; nearly forty species have been introduced. *C.* (*Echeveria*) *coccinea* and *lurida* have scarlet flowers; *grandifolia*, orange; *acutifolia*, scarlet and yellow; *racemosa* and *pulverulenta* have red flowers.

SEMPERVIVUM. (Houseleek.)

Gen. Char. (*Dodecandria Dodecagynia.*) Calyx twelve-parted; petals twelve; stamens and styles twelve; capsules twelve.

From *semper vivere*, to live for ever, in allusion to the long life of the plants. The common Houseleek is of this genus; and from Madeira and the Canary Islands we have several species introduced into the greenhouse, the flowers of most of which are yellow; the forms of many are very curious, particularly *tabulæforme*, which has the leaves closely packed together in a broad flat disc; *arachnoideum*, the leaves of which have entangled hairs; *tortuosum*, twisted; *urbicum*, wedge-leaved; *aureum*, the golden, and some others; *S.* (*Æonium*) *Youngianum*, a native of the Canaries, and *arboreum*, the Tree Houseleek, from the Levant, have yellow flowers; the latter has two varieties, one with varie-

gated, and the other with dark purple leaves; there are also the species *Californicum* and *retusum*, which are very curious.

ROCHEA.

Gen. Char. (*Pentandria Pentagynia.*) Flowers inferior; calyx five-parted; corolla funnel-shaped, five-cleft; scales five at the base of the ovary; capsules five.

Named after M. de la Roche. A succulent genus with handsome flowers, requiring a dry greenhouse; they have been separated from *Crassula*, which they greatly resemble; the species *falcata* has orange flowers and sickle-shaped leaves; there is a smaller variety with scarlet flowers; *perfoliata* has the leaves sessile, and joined together in twos at the base, the flowers are varied, but there is a variety with scarlet, and another with white flowers; *albiflora* has white flowers. This genus is easily grown in sandy loam kept rather dry; when cuttings are taken, they should be laid to dry a few days before being potted.

RESEDACEÆ.

Exogens, with flowers in racemes or spikes. Calyx many-parted. Petals broad fleshy plates, having torn appendages at the back, and unequal. Disc below the ovary, one-sided, glandular. Stamens definite, inserted into the disc.—Soft, herbaceous plants or small shrubs, with alternate, entire, or pinnately divided leaves, and minute gland-like stipules. Europe, the Mediterranean islands, and the adjoining parts of Asia, are the principal localities.

RESEDA. (MIGNONETTE.)

Gen. Char. (*Dodecandria Trigynia.*) Involucre many-leaved, spreading; central flower having both stamens and pistils, but no petals, surrounded by several fringe-petaled, barren flowers.

The genus is named from *resedo,* to calm, as some of the species were used in appeasing pain. The well-known *R. odorata,* the Mignonette of our gardens, is raised in the greenhouse for early spring use, and this is done by autumn sowing, and forcing; the young plants will then be ready for planting out as soon as frosts are over in the spring, whilst that sown in the open ground is still backward; or the seeds may be sown in pots out-of-doors in June, July, and August, and taken into the house before frosts set in: these will flower quite in the winter. The following plan is sometimes adopted for forming what is called

Tree Mignonette:—"Sow in March a few seeds of common Mignonette in 48 or 32-sized pots, in a compost of hazel-mould, leaf-mould, and sharp sand; place them in a cucumber frame where there is a good moist heat; when they have made about four leaves, pull up all but one strong plant in each pot; as that grows, pinch off all side-shoots. When the plant is drawn up by heat and moisture to the height of about eleven inches, it will show its blossom, which must be nipped off; let it be tied carefully to a stick with bast, and removed for about a fortnight longer to a melon-frame. It will soon produce another shoot near the top, which must be led up the stick, and all side-shoots cleared off about eighteen inches up the stem, the base-leaf left as before to assist the stem. Remove it to the greenhouse, and place it in a very airy situation. In the autumn it will put out a quantity of shoots from the top and sides; it will flower throughout the winter, and furnish nosegays all the spring."* Those who can conveniently try this experiment, will find amusement in the process. The examination of the flowers with a magnifying-glass is very interesting; they will be found to consist of several grouped together, as the generic character describes them.

* Floricultural Cabinet.

TROPÆOLACEÆ.

Exogens, with peduncles axillary, one-flowered. Divisions of calyx three to five, the upper one with a long, distinct spur. Petals one to five, growing from below the ovary, equal or unequal. Stamens from six to ten, on the calyx, distinct.—Smooth, herbaceous plants, trailing or twining; leaves alternate, without stipules; natives of the temperate parts of North and South America; properties acrid, but the roots and fruits of some genera are eaten.

TROPÆOLUM. (Indian Cress, Nasturtium.)

Gen. Char. (*Octandria Monogynia.*) Calyx one-leaved, five-cleft, spurred; petals five, unequal; nuts coriaceous, furrowed; seeds one, roundish.

As the leaves resemble a buckler, and the flower a helmet, the name is derived from *tropæum,* a trophy. This remarkably pretty genus of plants has some well-known hardy species, as the *Nasturtium, Canariense,* etc.; the latter flourishing more beautifully in the greenhouse than in the open air. Those species requiring constant shelter are *tricolor,* a lovely and delicate species, the leaves finely lobed, and the flowers shaded with orange, red, and green; *pinnatum, polyphyllum,* and *edule,* yellow; *azureum,* pale-blue; *tuberosum* and *Moritzianum,* orange; and *brachyceras* and *Jarrattii,*

yellow-flowered: these are all South American plants. *T.* (*Chymocarpus*) *pentaphyllus*, a plant from Buenos Ayres, is a beautiful greenhouse climber, growing several feet high, and producing plenty of lovely pendent flowers, of a pink hue, tinged with green; the calyx of this species does not fall off, as in the true *Tropæolum*, "but it increases in size and thickness, its vitality continuing undiminished until the decay of the stem that supports it. In the advanced state, the tube or spur assumes a fleshy consistence, and is abundantly supplied with a honey-like fluid, its extremity being partially separated from the rest by a constriction, as if formed by a ligature, and finally withering and falling off, while the other parts remain in a healthy state." This circumstance has given rise to the formation of a new generic name, *Chymocarpus*, from the Greek for *juicy* and *fruit*. *T. crenatiflorum* is brought from Peru, and is quite hardy in the summer; it is a climbing plant, with the leaves nearly orbicular, the lobes of which are small and rounded; the flowers are on long footstalks, solitary; the calyx yellow, tipped with green; the petals yellow, the two upper having a few purple streaks; it is a very pretty species. *T. speciosum* is a native of Chiloe, and is hardy enough for our summers; it is remarkably ornamental, and of a slender

climbing character; the leaves are rather peltate, cut to the base into six leaflets; the flowers are solitary, and of a rich vermilion-red, yellowish near the claw; this is a lovely species for mixing with the yellow-flowered kinds. *T. umbellatum* is a new species from Quito, and a most lovely plant, differing from other species by the flowers being in umbels, and so numerous as almost to conceal the leaves, the latter are deeply five-lobed; the umbels consist of six or more flowers, and are of an orange-red tipped with green; it blooms in the summer, and it is supposed that it will prove as hardy as the other introduced species. *T. Smithii*, a Columbian species, is also very beautiful, and, though hardy, is a charming climber also for the greenhouse; leaves peltate, and five-lobed, on long slender stalks; flowers solitary; calyx dull brick-red, spur green at the tip; petals orange, toothed and fringed with red, the two upper are small, the three lower large; it flowers all the summer.

These plants are all of easy cultivation in good soil.

MALVACEÆ.

Exogens, with showy flowers, having involucres of various forms. Calyx five-parted, joined at the edges. Petals five, twisted

in bud, either distinct or adhering to the tube of the stamens. Filaments united. Leaves more or less divided.—Herbaceous plants, trees, or shrubs; natives of the tropics principally, but extending to the temperate zone; abounding in mucilage used in medicine, and yielding fibres for cordage, and also cotton.

LAVATERA.

Gen. Char. (*Monadelphia Polyandria.*) Calyx double, outer three-leaved; capsules many, one-seeded.

Named after a physician at Zurich. Of this genus there are many hardy species for the garden, but a few, which are natives of the South of Europe, the coast of Africa, and Teneriffe, may become inhabitants of the greenhouse; they are *acerifolia, plebeia,* and *triloba,* lilac-flowered; *unguiculata* and *Lusitanica,* purple; *hispida,* rose-colour; and *phœnicea,* crimson. A light soil suits them.

MALVA. (Mallow.)

Gen. Char. (*Monadelphia Polyandria.*) Calyx double, outer three-leaved; stamens indefinite in number; capsules many, one-seeded.

The name arises from the Greek for *soft,* in allusion to the soft mucilage of these plants. This beautiful genus is

well known in the garden, and there are many lovely species adapted to the greenhouse, as follows: from the Cape we have *amœna, Capensis, balsamica, fragrans, stricta, grossulariæfolia, bryonifolia, anomala,* etc., which are red or pink-flowered; *reflexa, divaricata,* and *asperrima,* white-flowered; from Chili we have *purpurata,* dull-red, *lactea,* from Mexico, white, and *capitata* and *operculata,* purple-flowered, from Peru; *vitifolia,* from Mexico, has white flowers and vine-like leaves. *M. umbellata,* sometimes known as *Sphæralcea umbellata,* is a South American plant, with rather coarse foliage, but having a fine umbellate head of many elegant scarlet blossoms, which appear early in the year. There are other species considered as belonging to this division, *rosea, obtusifolia, elegans, abutiloides,* and *angustifolia,* which are introduced into the greenhouse, and are very handsome.

The soil should be loam, leaf-mould, and sand.

SIDA AND ABUTILON.

Gen. Char. (*Monadelphia Polyandria.*) Calyx simple, five-cleft, angular; style many-parted; capsules several, one or three-seeded.

Many species of the very similar genera, *Sida* and *Abutilon,*

are stove-plants, but a few will bear the cooler air of the greenhouse. *Sida picta* (*Abutilon striatum*), a native of Brazil, a favourite plant in the house or greenhouse, is of very rapid growth, and has rather large handsome leaves, and striped orange flowers; it is sometimes trained to the walls, and fills up spaces very rapidly; *linearis*, a native of New South Wales, and *triloba*, from the Cape, have white flowers; *malvæflora* and *dioica* are almost hardy, as they are natives of North America; *Abutilon pulchellum* is a shrub from New South Wales, almost hardy here, the leaves are of a shining dark-green, the flowers white and sweet; *albida* has whitish leaves and flowers; *S.* (*Gaya*) *occidentalis* has violet flowers; *hermannioides*, *nutans*, and *disticha*, yellow flowers, these are South American species, and all useful in those greenhouses, where shrubby plants are wanted; they are easily increased by cuttings or seeds. *A. vitifolia* is one of the handsomest of the genus, a native of Chili, but hardy enough for the open air at Dublin, though it is better for the shelter of the greenhouse, and in England requires it. This handsome shrub is from four to six feet high, with cordate lobed leaves, and racemes of very beautiful flowers, the corollas of which are large, spreading, striated, bluish-lilac, the anthers yellow, and the styles reflexed, and of a

O. Jewitt lith.

Vincent Brooks Imp.

Hibiscus grossulariæfolius.

purple hue. *A. venosa* is a large greenhouse shrub, producing beautiful golden orange-coloured flowers in spring and summer; the leaves are large, deeply seven-lobed; the flowers handsome, drooping; calyx large, bell-shaped, the tube inflated, globose, and the corolla twice as long as the calyx, and richly veined with brown on a golden-orange ground; the style is curious, having nine branches at the summit. These handsome shrubs thrive in good garden-soil, and should be plentifully supplied with water in the summer, when they may be exposed to the open air.

HIBISCUS.

Gen. Char. (*Monadelphia Polyandria.*) Calyx double, outer many-leaved; stigmas five; capsule five-celled, many-seeded.

Hibiscus was one of the Greek names for the *Mallow.* This well-known and highly ornamental genus is familiar to every one, from the species introduced into the garden. *H. grossulariæfolius* and *Wrayæ* are natives of Australia, and are very handsome species for the greenhouse, or in the summer they may be planted against a wall in a sheltered place, and flower well in either situation; the former is a

shrub of three or four feet high, with heart-shaped leaves, deeply five-lobed; flowers large, rich bluish-purple, the petals triangular, one angle rounded, the others sharp; the column of stamens is much elongated, and the style longer still, the stigma dilated with five obtuse rays; altogether it is a very handsome plant.

NUTTALLIA.

Gen. Char. (*Monadelphia Polyandria.*) Calyx double, outer three-leaved; stamens indefinite in number; capsules many, one-seeded.

Named after a Mr. Nuttall. Some of the plants of this genus are hardy, but *N. grandiflora* is often introduced into the greenhouse, from the beauty of its large purple flowers, which appear in July and last till October. If the genus is admired, other species may be introduced, as they are perennials, and require no particular care; *pedata* and *digitata* have dark-purple flowers; *malvæflora*, flesh-coloured; *Papaver*, purple; *cerasiformis*, white, and *concordata*, pink flowers.

TILIACEÆ.

Exogens, with axillary flowers. Divisions of calyx four or five. Petals four or five, entire, with a little pit at their base, or they are wanting. Stamens generally indefinite in number, distinct. Ovary single, composed of from two to ten carpels, which are sometimes disunited. Style one, stigmas as many as the carpels. Leaves simple, toothed, alternate.—Trees or shrubs, very seldom herbaceous plants; natives principally of the tropics.

FRIESIA.

Gen. Char. (*Dodecandria Monogynia.*) Calyx five-parted; petals four, with the apex three-lobed; anthers twelve.

Friesia pedunculáris is a very elegant shrub for the greenhouse, about six feet high, with opposite lanceolate leaves of a pretty bright green, and drooping flowers on pendent stalks, these spring from amongst the leaves and are exceedingly pretty and numerous, giving a myrtle-like appearance to the plant; the petals are longer than the calyx, broad, and three-lobed, white, with orange spots at the base, and two orange dots on the lobes; it is a native of Van Diemen's Land.

SPARMANNIA.

Gen. Char. (*Polyandria Monogynia.*) Calyx four-leaved; petals four; filaments cohering at the base, slightly twisted; capsule covered with prickles, five-angled and five-celled; cells two-seeded.

Named after Sparman, a Swede, and traveller. *S. Africana,* from the Cape, is a beautiful shrub, and deserves a place in the greenhouse; it has pure white flowers, which are in beauty in March; there is also another species called *rugosa,* with rough leaves. They grow freely in loam and peat, and are increased by cuttings.

POLYGALACEÆ.

Exogens, with flowers in racemes, often small and inconspicuous, but sometimes showy; stalks with three bracts. Division of calyx very irregular, two of them like winged petals. Petals usually three, of which one is large and keeled. Stamens eight, usually combined in a tube, sometimes four, and distinct.—Shrubs or herbaceous plants, occasionally twiners; leaves generally alternate, sometimes opposite; natives of various parts of the world, having bitter and milky qualities.

POLYGALA.

Gen. Char. (*Diadelphia Octandria.*) Calyx of five leaves, two

of which are wing-shaped and coloured; stamens eight; capsule compressed.

The name arises from Greek words meaning *much* and *milk*. Many species of this genus are beautiful greenhouse plants, with purple or blue flowers, and are natives of the Cape. Most of them are named from the distinctions in the form of the leaf, as *cordifolia, latifolia, oppositifolia, myrtifolia, ligularis, pinifolia, teretifolia,* etc.; *grandiflora* has large purple flowers. *P. gracilis* is a New Zealand species, with blue flowers. *P. thesioides* was introduced from Valparaiso, by Mr. Cuming; it is a pretty, small, shrubby species, with deep blue flowers, marked with darker spots. Besides the above there are *acuminata, Dalmaisiana,* and *speciosa*. Many of these plants flower very early, so that they are particularly valuable in the greenhouse, and they are certainly highly ornamental; they are readily increased by cuttings of the young wood planted in sandy soil, or by seed sown in spring, and placed in a hotbed, and when up, gradually hardened in the greenhouse.

COMESPERMA.

Gen. Char. (*Diadelphia Octandria.*) Divisions of calyx irregular; petals unequal in size.

A genus of Australian plants with purple Polygala-like flowers; the species are *gracilis, virgata, ericina,* and *cordifolia;* they are occasionally introduced into the greenhouse.

MURALTIA.

Gen. Char. (*Diadelphia Octandria.*) Divisions of calyx five, and like that of the flower of grass, nearly equal; petals three, united, the middle bifid with blunt lobes; ovary with four horns or tubercles, two-valved, two-celled.

Named after Muralt, a Swiss botanist. Handsome bushes, from the Cape, suitable to the greenhouse, as they flower very early in the spring, indeed as early as January. *M. Heisteria, alopecuroides, stipulacea, virgata, linophylla, macroceras,* and *humilis,* have purple flowers; *squarrosa, diffusa, mixta, ciliaris,* and *pubescens,* have lilac; and *juniperifolia* has red flowers: *M. Heisteria* is seldom out of flower: they require similar treatment to *Polygala.*

MUNDIA.

Gen. Char. (*Diadelphia Octandria.*) Divisions of calyx five, and

grass-like, the two inner wing-shaped; petals three, scarcely united at the base, the middle one hood-shaped, beardless; stamens seven or eight, monadelphous at the base, with a tube divided in front.

A pretty little Cape bush, named *Mundia spinosa,* having the flowers lilac, and of which there are varieties with broad or narrow leaves, is sometimes seen in greenhouses; they are found easy of cultivation, with ordinary care; the fruit is said to be eaten at the Cape.

TERNSTRŒMIACEÆ.

Exogens, with the flowers generally white. Divisions of calyx five or seven, imbricated when in bud, concave, coriaceous, falling off. Petals five, six, or nine, not equal in number to the divisions of the calyx, often combined at the base. Stamens many; filaments filiform, monadelphous or polyadelphous or distinct. Ovary superior, with several cells.—Trees or shrubs; leaves alternate, coriaceous, usually without stipules and undivided; natives of many parts of the world; tea is the produce of a species of this Order, and the flowers of others are very attractive.

CAMELLIA.

Gen. Char. (*Monadelphia Polyandria.*) Calyx imbricated, many-leaved, the inner leaflets largest; stamens many.

The name of this interesting genus was derived from a Jesuit of the name of Kamel. The Tea-tree of China, *Camellia viridis* and *Bohea*, is now formed into a genus, and known as *Thea;* the species are tolerably hardy, and only require the shelter of the frame or greenhouse in the winter; the flowers are white, and the shrubs are occasionally introduced here as a curiosity; but the *Camellia japonica* far transcends them in beauty, and is a very great favourite in the greenhouse, and most deservedly so; the fine wax-like flowers of pure white or deep red, and the deep green shining foliage forming a beautiful contrast. This species has now spread into very many varieties, which differ principally in their colours; thus there is the single and double red; the single and double white; and the semi-double white and red; the pæony-flowered rose, blush, or white; the pale yellow-flowered, the crimson, the double-striped, and many others. Some of these varieties have been introduced from China, as well as the original, for the Chinese are exceedingly fond of cultivating this plant, and it is frequently found in their paintings. *C. Sasanqua* is a white- or pink-flowering species, with varieties, semi-double and double; *maliflora* is pink-flowered; *Kissi*, white, and *reticulata*, scarlet-flowered: *Kissi* is found in Nepaul. The

following plan is one among many adopted to ensure good flowering plants: the soil should be an equal quantity of good sandy loam, and well decomposed leaf-mould; when the plants have done flowering, those that require it should be shifted, taking care that the pots are well drained, they should then be replaced in the greenhouse or pit, and watered freely till about the middle of June; at that time they may be turned out-of-doors into a cool sheltered place till September, and should be watered sparingly; they must be returned to the greenhouse at the proper time, and with care during the winter they will flower abundantly. They are increased by cuttings from the old single red variety, and require to be plunged in a hotbed of moderate heat to make them root; these are for stocks, but the quickest plan is by grafting, inarching as it is called.

DILLENIACEÆ.

Exogens, with flowers solitary, in terminal racemes, or in panicles. Divisions of calyx five, not falling off. Petals five, imbricated, falling off. Stamens numerous, arising from below the ovarium, either distinct or grouped together, and either placed regularly round the pistil, or on one side of it; filaments dilated at the base or apex. Leaves usually alternate, and having strong

veins from the midrib to the margin.—Trees, shrubs, or undershrubs; natives of Australia, India, and America; properties astringent.

HIBBERTIA.

Gen. Char. (*Polyandria Pentagynia.*) Stamens many, distinct, filiform, equal; anthers oval, oblong; ovaries from one to fifteen; styles filiform, inflexed.

Named after Mr. Hibbert, a collector of plants. This is a genus of ornamental plants from Australia, with yellow flowers; the species are *volubilis, grossulariæfolia, dentata, Cunninghamii, perfoliata, corifolia, obtusifolia, pedunculata, cistifolia, flexuosa,* etc., some of which are of a climbing habit. The soil should be sandy loam, and peat.

RANUNCULACEÆ.

Exogens, with generally conspicuous flowers, for if the petals are absent, then the calyx is coloured; divisions of the latter from three to six, below the ovary, falling off, generally imbricated in bud. Petals from three to fifteen, in one or more rows below the ovary, distinct. Stamens numerous below the ovary. Leaves generally much divided, with the stalk half-clasping the stem.—Herbs, or rarely shrubs; natives of cold damp climates, or the mountains of hot countries; properties poisonous and acrid.

CLEMATIS. (Virgin's Bower, or Traveller's Joy.)

Gen. Char. (*Polyandria Polygynia.*) Calyx of four or six parts, coloured; stamens below the germen; filaments dilated at the apex; anthers two-celled; style downy and feathery.

Named from the Greek for *tendril,* as the leaf-stalk has the power of clasping any object within reach; this circumstance renders it very necessary to train these plants early, or they cling together and become an inextricable mass of confusion. There are many well known hardy species which are extremely ornamental in the garden, several which require stove-heat, and the following are very useful and beautiful in the greenhouse :—*C. coriacea, aristata,* and *stenosepala,* from Australia, with white flowers, and *cliterioides* with purple; *hedysarifolia,* from Nepaul; and *brachiata,* from the Cape; *indivisa* is a native of New Zealand, and a very ornamental species for the greenhouse, particularly the variety called *lobata;* it is a climbing plant, with its leaves divided into three parts; the flowers in copious panicles, very large, of a creamy-white colour, and drooping; the stamens have yellow filaments and deep rose-coloured anthers, these gradually become of a deep purple hue; in its native country this lovely plant "quite festoons the trees and shrubs with

its dense foliage and large panicles of flowers," it would therefore be very showy in the greenhouse. *C. barbellata* is a native of the Himalaya mountains, and a very pretty species, having large, purplish, drooping flowers, the edges of the sepals bordered with cream-colour; it is a climbing species, and nearly hardy: these are all climbing plants, but *smilacifolia*, from Nepaul, and *gentianoides*, from Van Diemen's Land, having white flowers, are not climbing. These plants are very useful in the greenhouse, as they are of rapid growth, and soon fill up vacancies; they prefer a loamy but light soil.

KNOWLTONIA.

Gen. Char. (*Polyandria Monogynia.*) Divisions of calyx five; petals five to fifteen, with a naked claw; ovaries upon a globose receptacle; grains one-seeded, in the form of a berry; the style falling off.

Named after a Mr. Knowlton. Cape plants, requiring the shelter of the greenhouse. The species are *vesicatoria*, having a simple umbel of a few green flowers; *rigida*, the umbel of which is spreading and the colour green, the leaves thick; and *gracilis*, *daucifolia*, and *hirsuta*, also with

C. Jewitt lith.

Vincent Brooks Imp.

Clematis barbellata.

green flowers. They require loam and peat soil, and grow freely; they can be increased by dividing the root.

FUMARIACEÆ.

Exogens, with irregular, unsymmetrical flowers. Divisions of calyx two, falling off. Petals four, very irregular. Stamens four, distinct, below the ovary, or six, in two parcels, opposite the outer petals, very seldom all separate. Leaves much cut, often with tendrils.—Natives of temperate and northern latitudes principally.

DIELYTRA.

Gen. Char. (*Diadelphia Hexandria.*) Petals four, two outer equally spurred or gibbous at the base; pod two-valved, many-seeded.

Named from the Greek, on account of the two spurs or pouches. *D. spectabilis* is a native of China, and has become a great favourite on account of its beautiful flowers, which are purse-like in shape, of a clear red colour, tipped with white, and forming a curved spike; the leaves are peony-like. It has become hardy, but also deserves a place in the greenhouse or room, where it flowers earlier than when out-of-doors; it requires a sandy loam, and

should be kept tolerably dry in the winter after it has died down. The tuberous roots may be divided.

DROSERACEÆ.

Exogens, with the young flowering-stalk curved or rolled up. The divisions of the calyx five, not falling off. Petals five, imbricated. Stamens distinct and withering, either equal in number to the petals and alternate with them, or two, three, and four times as many. Ovary single. Styles three to five. Leaves with stipulary fringes.—Delicate herbaceous marsh plants, often covered with glands, and of a slightly acrid nature.

DROSERA. (Sun-dew.)

Gen. Char. (*Pentandria Pentagynia.*) Flowers inferior; petals five; capsule of three valves, with many seeds.

Named from the Greek for *dew,* on account of the pellucid dew-like glands on the surface of the leaves. These plants may be treated as water-plants in the greenhouse, and where there are tanks for holding those of a similar character, they may be added with advantage, or they may be planted in chopped moss and sandy peat, kept very wet. From the Cape we have received *D. acaulis* and *pauciflora,* which are white-flowered, and *cuneifolia,* with whitish-red

flowers: the latter has two varieties. From the Swan River we have *macrantha* and *filicaulis*, with rose-coloured flowers, and *macrophylla*, *gigantea*, *pallida*, *erythrorhiza*, and *stolonifera*, with white flowers.

VITACEÆ.

Exogens, with regular, symmetrical flowers, but small and green. Calyx small, entire at the edge. Petals four or five, inserted on the outside of a disc surrounding the ovary. Stamens equal in number to them, inserted on the disc, sometimes sterile. Berry round, pulpy. Leaves simple or compound.—Climbing shrubs; the wood has ducts, which at certain seasons pour forth sap; natives of mild and hot climates of both hemispheres.

CISSUS.

Gen. Char. (*Tetrandria Monogynia.*) Flowers superior, many-petaled; calyx one-leaved, nearly entire; berry one-seeded, rarely three or four-seeded, surrounded by the calyx.

Cissus is the Greek name for the Ivy, and is given to this genus as it is of a climbing character. Many of the species are beautiful stove-plants, natives of the East Indies; a few bear the greenhouse, as *tiliacea*, from Mexico; *Ca-*

pensis, cirrhosa, and *quinata,* from the Cape; *antarctica,* called the Kangaroo Vine, from New South Wales; *glandulosa,* from Arabia; *pentaphylla,* from Japan, and *orientalis,* from the Levant. *C. discolor* has curiously variegated leaves, and they all have insignificant greenish flowers. Their great use in the greenhouse arises from their rapid growth, enabling them to cover a wall very quickly, in the same way that the *Ampelopsis,* or Virginian Creeper, covers walls and roofs in the garden.

PITTOSPORACEÆ.

Exogens, with flowers having the calyx four or five-parted, falling off, either distinct or partially cohering. Petals four or five, sometimes slightly cohering. Stamens five, distinct, alternate with the petals. Ovary distinct, single. Fruit capsular or like a berry. Leaves simple, usually entire, sometimes serrated.—Trees or shrubs; natives of Asia, Australia, New Zealand, etc.

PITTOSPORUM.

Gen. Char. (*Pentandria Monogynia.*) Flower polypetalous, inferior; calyx falling off; petals five, converging into a tube; capsule from two to five-celled.

Named from the Greek for *resin* and *seed,* as the cap-

sule is resinous. A genus of handsome shrubs having beautiful evergreen foliage, and green, white, or straw-coloured flowers. *P. Tobira* is nearly hardy, it is a native of China; from the Cape we have *viridiflorum;* from New South Wales, *undulatum, revolutum, flavum,* and *tenuifolium;* from New Holland, *ligustrifolium* and *tomentosum;* from New Zealand, *cornifolium;* from Van Diemen's Land, *bicolor;* from Madeira, *coriaceum,* and from the Canaries, *hirtum.* These plants are increased by cuttings, and they should have a loam and peat soil.

BILLARDIERA. (Apple-berry.)

Gen. Char. (*Pentandria Monogynia.*) Flowers polypetalous, inferior; petals five, alternate with the divisions of the calyx; stigma simple; berry many-seeded.

Named in honour of a French botanist. This genus is composed of Australian plants, of a climbing nature, growing fast, and flowering abundantly. The species are *B. longiflora,* with its flowers single, and its fruit of a fine blue, which is also highly ornamental; *scandens, mutabilis, ovalis, angustifolia, parviflora,* and *daphnoides,* the flowers

of which are straw-coloured, blue or greenish-yellow. *B. heterophylla, Drummondii, tomentosa,* and *linearis,* are now generically called *Sollya ;* they are also climbing plants ; the soil should be loam and peat ; cuttings root easily.

EPACRIDACEÆ.

Exogens, with flowers either in spikes or terminal racemes, or solitary and axillary ; the calyx or flower-stalk with two or more bracts. Calyx five-parted, often coloured, not falling off. Corolla monopetalous, either falling off or withering. Stamens equal in number to the segments of the corolla, and alternate with them ; filaments arising from the corolla. Ovary sessile. Leaves alternate, entire, or occasionally serrated.—Shrubs or small trees ; natives of the Indian Archipelago and Australia ; flowers beautiful.

EPACRIS.

Gen. Char. (*Pentandria Monogynia.*) Calyx coloured, with many bracts ; corolla tubular, with a beardless limb ; stamens on the petals ; scales five.

Named from the Greek for *upon* and *the top,* from the plants growing on the tops of mountains. A very ornamental greenhouse genus, natives of Australia, and abound-

ing in that country as Heaths do at the Cape, seeming to take the place of that genus. *E. pulchella* is a beautiful species, having a long spike of small whitish-pink, sweet-scented flowers, which appear in March and last till June; *microphylla, apiculata, ruscifolia, ceræflora, nivalis, obtusifolia, heteronema* and several others, are white-flowered; *purpurascens,* is called the rigid-leaved, they are of a hooded form, with a recurved end; the flowers are lilac, and there are varieties with pale, and also with red flowers; *grandiflora* has pendulous crimson flowers, and is a very handsome species, and one that continues the longest in bloom, though its flowers are not in great profusion at one time; they are often an inch and a half long, bright crimson near the stalk and pure white below, so that they are peculiarly striking; *impressa* and *variabilis* have lovely flowers; the former is an elegant species, having numerous spikes of fine rose-coloured flowers which appear on every branch; the plant is about three feet high, and deserves a place in every greenhouse. *E. campanulata* is equally beautiful, its blush-coloured flowers being showy, and appearing in April; a white variety is also cultivated; *ceræflora* has wax-like white flowers, which are produced very freely; *E. heteronema* has a pure white corolla, with deep purplish-red anthers, which

form a pleasing contrast; it is found in moist rocky situations in Van Diemen's Land; *nivalis* is another beautiful white-flowered species, the calyx is ciliated, the corolla campanulate, one inch or more long, five-sided, and with five divisions at the edge; this is a most attractive species, it forms a large bush, and flowers well from April for several months.

The soil most suitable for these plants is a sandy peat, and they should be shifted into fresh pots before they are turned out-of-doors after flowering, which treatment they bear well, and it makes them produce their flowers better the following season. Young cuttings should be planted in autumn or spring, and will strike root readily if covered by a bell-glass; these plants should be kept rather moist than otherwise, and have plenty of air. As it is desirable that they should be bushy in form, the upward shoots must be checked by taking off the tops; the lateral shoots will then grow, and this may be repeated till the plant has become bushy and of a handsome form, then the shoots may be allowed to grow and produce flowers. It is considered that slow growth is desirable, as in that case the leaves are nearer each other, and have a much handsomer appearance. There are many other species to be procured at the cultivators'.

ANDERSONIA.

Gen. Char. (*Pentandria Monogynia.*) Calyx coloured, with two or more leafy bracts; corolla the length of the calyx, the segments of the limb bearded at the base; stamens below the ovary; scales five, sometimes joined together.

Named in honour of botanists of the name of Anderson. *A. sprengelioides* is a native of New Holland, and has pink flowers in an upright head, and the leaves spreading; *aristata* is found at the Swan River, with white flowers and bristle-shaped leaves. These plants grow freely in a peat soil with sand, and should have but little water and well-drained pots.

LEUCOPOGON.

Gen. Char. (*Pentandria Monogynia.*) Calyx with two bracts; corolla funnel-shaped, with a spreading limb, bearded lengthwise; filaments included; ovary from two to five-celled.

Named from the Greek for *white* and *beard*, as the flower is white and the segments are bearded. This is a genus of small shrubs from Australia, with pretty white flowers; the principal are, *L. ericoides, juniperinus, Richeii, lanceolatus,*

interruptus, obovatus, etc. They require a peat and sandy soil, and good drainage.

STYPHELIA.

Gen. Char. (*Pentandria Monogynia.*) Calyx five-parted, with many bracts; corolla a long tube, having within five bundles of hairs, and bearded reflexed segments; filaments long and protruding; drupe juiceless, with a solid bony stone.

A name derived from the Greek for *dense,* from the compact habit of these shrubs. They are natives of New Holland, with showy flowers: *tubiflora* and *splendens* are very beautiful, the former has crimson flowers, which are so numerous that they almost cover the plant, and will last for many weeks; *triflora* has crimson flowers with a tinge of green; and *viridiflora, latifolia, adscendens, læta, longifolia,* etc., green flowers. They require, like most of this Order, a sandy peat soil and the shelter of the greenhouse, in which they are very useful, as they flower early in the year.

STENANTHERA.

Gen. Char. (*Pentandria Monoynia.*) Calyx with many bracts;

corolla tubular, longer than the calyx, ventricose, with a short, spreading, half-bearded limb; filaments included, fleshy, broader than the anthers; drupe juiceless, with a solid bony stone.

Named from the Greek for *narrow* and *anther*. *S. pinifolia* is a curious shrub from New South Wales, with pine-like leaves, which are very numerous, and cover the stem, the flowers are of a scarlet colour, and large compared with the leaves; it is in full beauty in May, and looks well in the greenhouse. There is another species from the Swan River, called *ciliata*, from its fringed leaves; it has red flowers. They grow in sandy peat soil, which should be well drained, as they do not bear much water.

ERICACEÆ.

Exogens, with flowers variously grouped. Calyx four or five-cleft, nearly equal, inferior, and not falling off. Corolla monopetalous, four or five-cleft, regular or irregular. Stamens equal to, or twice as many as the segments of the corolla. Ovary many-celled and many-seeded. Fruit capsular.—Shrubs; leaves evergreen, rigid, entire, whorled or opposite; abundant at the Cape, common in Europe and America, less so in Asia; some of the fruits edible, others possessing medicinal qualities.

ERICA. (Heath.)

Gen. Char. (*Octandria Monogynia.*) Divisions of calyx four, not falling off; corolla four-cleft, also remaining; filaments inserted in the receptacle; anthers bifid; capsules membranous, four to eight-celled.

The name is from the Greek for *to break*, from the brittle nature of the branches. As there are several hundred species of Cape Heaths for the greenhouse, it would be useless to mention all their names, for a list can be obtained at the dealers', or a selection can be made with more satisfaction by a visit to the cultivators, Messrs. Henderson and Co., who have a fine assortment of these beautiful plants, which, in their flowering season, have a splendid effect: in the July *fête* of the Botanic Gardens in the Regent's Park, these beautiful plants may be seen to perfection. It is impossible to convey an idea of their variety, either as to the colour or form of the flower; some are extremely elegant, with drooping, tube-like flowers, the substance of which shines like china; others are splendid in colour, a few are even grotesque, and several are sweet-scented: they are also so covered with bloom, when fine, that the leaves are scarcely seen. Some of them are to be found in flower at all

seasons, so that, when other flowers fail, the greenhouse may still be gay with heaths; they have the advantage too of preserving their blossoms for a length of time.

The soil required for heaths is peat and sand, and if the pots are very well drained, plenty of water may be given to them, for if they once get thoroughly dry the roots are killed; they should not be much exposed to a hot sun, but they will be benefited by being in the open air in summer, after being pruned. They should have a free circulation of air at all times, as they are apt to become mildewed.

LYONIA.

Gen. Char. (*Decandria Monogynia.*) Calyx five-lobed; corolla subglobose, with five teeth; capsule five-celled, five-valved.

An American genus, some of the species of which are hardy. The following are very ornamental in the greenhouse,—*rigida, fasciculata,* and *Jamaicensis.* The latter has numerous flowers, of a delicate, transparent, waxy appearance, slightly tinged with green and pink, the form globular, with a contracted mouth; the scent is like that of honey; the leaves are handsome, about two inches long,

and the shrub is of a moderate size. The soil should be peat, kept rather damp.

ANDROMEDA.

Gen. Char. (*Decandria Monogynia.*) Calyx five-parted; corolla ovate, with a five-cleft orifice; stamens separate; ovary superior; capsule five-celled.

The genus is named after Andromeda, who, like these plants, was said to be confined to a marsh. Many species are hardy; *ovalifolia, Sinensis,* and *buxifolia* look well in, and require the greenhouse, as they come from India and China; the flowers are blue. *A. cassiniifolia,* now called *Zenobia cassiniifolia* or *speciosa,* is a very pretty species from Carolina, and, though hardy, is a lovely plant for the greenhouse; it has long thin branches, beneath which hang the flowers, like little white bells; it continues in blossom some weeks and is rather striking. They all require heath-mould, plenty of water, and should not be exposed to the sun.

CLETHRA.

Gen. Char. (*Decandria Monogynia.*) Calyx five-parted; petals

O. Jewitt lith.

Vincent Brooks Imp.

Gaultheria bracteata.

five; stamens separate; stigma three-cleft; capsule three-celled, three-valved.

A Greek name for a genus of pretty plants principally natives of North America, and hardy; *C. arborea*, a native of Madeira, should be in every greenhouse; it has handsome oblong leaves, bright and smooth, and pendent racemes of white flowers, like the Lily of the Valley.

GAULTHERIA.

Gen. Char. (*Decandria Monogynia.*) Outer calyx two-leaved, inner five-cleft, ovate; nectary with ten points; capsule five-celled, clothed with the inner calyx.

Named after Gaulthier, a French physician, of Quebec. Several species from America are hardy; *fragrans*, from Nepaul, with red, and *leucocarpa*, from Java, with white flowers, should be kept in the greenhouse; *bracteata* is from New Granada, and is a very pretty mountain plant for the greenhouse, but it will bear putting out in summer, though it should be in a shady place, as it is said not to like the hot sun; it has prostrate branches, handsome leaves, terminal racemes of flowers, with the large bracts, calyx,

and petals rose-colour. It requires light peat soil, and a cool greenhouse or frame in winter.

ARBUTUS. (Strawberry-tree.)

Gen. Char. (*Decandria Monogynia.*) Calyx five-parted; corolla ovate, with a five-cleft orifice, pellucid at the base; stamens separate; berry five-celled.

The name of the genus is supposed to be from the Celtic, from the roughness of the fruit. The beautiful *Arbutus Unedo,* a native of the South of Europe, is well known in our gardens, besides several others which are introduced; a few require the shelter of the greenhouse, and are very ornamental there. *A. Canariensis* has greenish-white flowers; *densiflora* and *tomentosa,* white flowers; the latter are from South America; *A. mollis* is a native of Mexico, and is a very fine evergreen species, flowering in the greenhouse in June; the leaves underneath are clothed with down of an ashy or reddish tinge; the panicle of flowers is particularly beautiful; the calyx small, the corolla large, bell-shaped, and with a very contracted mouth, white or greenish rose-colour; the stamens curiously dilated, and very hairy; it is

an interesting plant. The species should have a mixture of rich loam and peat soil.

BLÆRIA.

Gen. Char. (*Tetrandria Monogynia.*) Calyx four-parted; corolla four-cleft, somewhat bell-shaped; capsule four-celled, many-seeded, opening at the angles.

Named after a Mr. Blair. This genus resembles *Erica* in general characters; the species are from the Cape, and have flowers either white, purple, or rose-coloured; the species are *ericoides, muscosa, fasciculata, purpurea, dumosa, glabella,* etc. They require the same treatment as Heaths.

ENKIANTHUS.

Gen. Char. (*Decandria Monogynia.*) Calyx small, but not falling off; corolla campanulate, with a five-cleft limb; nectaries five at the base of the corolla; anthers two-horned; capsule one.

This is a beautiful genus of Chinese plants, and the species are particularly ornamental in the greenhouse: *E. quinqueflorus* has pink flowers, which show themselves in October and last into the winter, making the plant very useful

at that dull period. *E. reticulatus* has blush-coloured flowers and netted leaves, and there is a new species called *Hongkongensis* lately introduced. The best soil for them is sandy loam and peat, and the plants should be only watered when in a growing state; they are increased by ripened cuttings planted in sand under a hand-glass.

LEUCOTHOE.

Gen. Char. (*Decandria Monogynia.*) Calyx three-lobed; corolla ovate, cylindrical, bell-shaped, with the mouth five-toothed; stamens ten, included; style filiform.

This genus has been separated from *Andromeda;* there are several hardy species, but *L. pulchra* may be introduced into the greenhouse with great advantage, as its leaves and flowers are particularly handsome: it is a shrub about two feet high, the leaves bright green and coriaceous; the flowers numerous and pendent, having the corolla cylindrical, and the mouth small, with five small, erect teeth; the colour greenish-white, with a little pale red about the middle: it flowers in May, and bears a cool greenhouse, though it is from the Caraccas. *L. nerifolia,* from Brazil, is also a greenhouse plant and very beautiful; the raceme of flowers is

bright red, the stalks, calyx, and corolla all being of the same hue. These plants should have light peat soil, well drained, and be shaded from the sun in summer.

AZALEA.

Gen. Char. (*Pentandria Monogynia.*) Corolla bell-shaped, inferior; stigma obtuse; capsule five-celled.

From the Greek for *dry*, in allusion to the places where these plants are found. The hardy species of this beautiful genus are well known in the garden, but those from India require shelter in the greenhouse, and are a considerable ornament during the flowering season. *A. Indica* is the species so much admired, and it has spread into many varieties, with flowers of various colours, as scarlet, purple, yellow, and pink; in the spring *fêtes* at the Botanic Gardens these very lovely plants and their varieties make quite a show by themselves. Besides the species *Indica*, there are *Danielsiana*, with red flowers; *Farreræ*, with lilac; *ovata*, white; *obtusa*, crimson, and *Sinensis*, yellow-flowered, the varieties of which are hardy. *A. crispiflora*, a native of China, is a remarkably handsome species, and worthy of a place in

every greenhouse : it is a moderate-sized shrub, with rather small leaves ; the flowers large and solitary, the corolla deep rose-colour, the tube obtusely five-angled, and gradually widening into a five-lobed, spreading limb, much waved and crested at the edge ; it produces these fine flowers in April. Another from China, *A. amœna,* brought by Mr. Fortune, will probably soon be hardy, but at present it requires the shelter of the house : the flowers are small, but very numerous, and are remarkable for having the calyx very large and coloured like the corolla, which is of a rich purple tinged with crimson. In cultivating the *Azalea,* sandy peat, very well drained pots, and an airy greenhouse are indispensable, and they should not be over-watered, though they droop if permitted to be dry ; in summer they are the better for exposure to the open air, but sheltered from the full sun. It is considered a good plan to give these plants increased heat for a time, after they have quite done flowering, to cause the formation of flower-buds for the next season ; after this, they may be hardened. Azaleas are raised by cuttings, planted in sand, on a peat soil, covered with a bell-glass, and plunged into a moderate hotbed.

RHODODENDRON.

Gen. Char. (*Decandria Monogynia.*) Calyx five-parted; corolla somewhat funnel-shaped; stamens separate and drooping; ovary superior; capsule five-celled.

The name is derived from the Greek for *rose* and *tree*. Of this beautiful genus, so useful and ornamental in the garden, there are some species which require the shelter of the greenhouse, as *R. arboreum*, called the Tree Rhododendron, a native of India, and having scarlet flowers; the varieties, of which there are many, have cinnamon, carmine, or rose-coloured flowers, others are snowy-white, or having dark spots, and new characters and colours are being constantly produced, making the genus one of great interest. These plants can hardly be surpassed in beauty, and they are quite worthy of much care and attention: they are inhabitants of moist and yet elevated positions. Dr. Hooker's elaborate and beautiful work on those he found on the Himalaya Mountains should be referred to by those who are partial to this lovely genus; many of these are now introduced into greenhouses, but they are not yet common. They should have similar treatment to the *Azalea*.

AURANTIACEÆ.

Exogens, with the flowers having the calyx urn-shaped or campanulate, somewhat adhering to the disc, three or five-toothed, withering. Petals three to five, broad at the base, sometimes distinct, sometimes slightly combined. Stamens equal in number to the petals, or twice as many or more; filaments flattened at the base. Ovary free, many-celled; style one, taper; stigma slightly divided, thickish. Fruit pulpy.—Trees or shrubs; leaves alternate, often compound; natives of the East Indies; the leaves abound in volatile, fragrant, bitter oil; the fruit edible.

CITRUS. (Orange-tree.)

Gen. Char. (*Polyadelphia Polyandria.*) Calyx five-cleft; petals five, oblong; anthers twenty, the filaments variously divided; berry nine-celled.

The name of this well-known genus is of uncertain derivation; it contains the Orange, Citron, Lemon, Lime, Forbidden Fruit, Shaddock, Mandarin Orange, etc.; besides bearing these useful and agreeable fruits, they are very handsome evergreen trees, with shining, dark-green leaves, and beautiful odoriferous flowers: the wood also is useful. *C. Aurantium* is the common Orange, and becomes a middle-sized tree, with handsome, oval, and acute leaves; the fruit globose, with a thin skin and sweet pulp; the flowers white

and extremely sweet. In the south of Europe this Asiatic tree will bear the open air, but here it must be in the greenhouse, or conservatory: the dwarf kind is the most suitable as to size. The soil they prefer is light mould, mixed with river-sand, and hotbed manure and leaves; they grow very well in pots or boxes, but do not produce fruit so well as when planted in the ground in a conservatory.

The other fruits of this genus are not very often introduced into the greenhouse, except *C. nobilis*, the Mandarin Orange, which is a free grower, and has a dwarf, bushy habit, with small leaves and abundant bloom. In September, all plants of this genus are improved by being fully exposed to the outer air and the sun; they then ripen their wood better, and produce more of their deliciously sweet-scented flowers.

RUTACEÆ.

Exogens, with flowers regular or irregular. Calyx having four or five divisions. Petals four or five, distinct, or combined in a corolla of one petal. Stamens equal in number to the petals, or twice or thrice as many; between the stamens and ovary there is a more or less complete cup-shaped disc, which is either free or united to the corolla. Leaves usually covered

with pellucid dots.—Trees or shrubs, natives of the southern parts of Europe, the Cape, and New Holland; properties bitter, and having a powerful odour.

ZIERIA.

Gen. Char. (*Tetrandria Monogynia.*) Flowers inferior; calyx four-cleft; corolla of four petals; stamens four, smooth, with filaments inserted into a gland; style simple; stigma four-lobed.

Named after Mr. Zier, a botanist. A genus of pretty greenhouse plants from New South Wales; the species are *lanceolata, macrophylla, lævigata, arborescens, pauciflora, hirsuta,* etc., with white, and *octandra* with green flowers.

BORONIA.

Gen. Char. (*Octandria Monogynia.*) Calyx four-cleft, not falling off; petals four, ovate; nectary coronate; filaments ciliated and incurved; stigma capitate.

This is a beautiful genus of greenhouse shrubs from New Holland, with various-coloured flowers. The following are some of the specific names:—*serrulata, spathulata, teretifolia, crenulata, denticulata, parviflora, pinnata, alata,*

Drummondii, cordifolia, ensata, rufa, triphylla, and *viminea.* These plants require sandy peat, and the pots should be well drained; they may be increased by layers or ripe cuttings, planted in sandy peat and covered by a glass.

CORRÆA.

Gen. Char. (*Octandria Monogynia.*) Calyx campanulate; petals four; capsule four-celled, opening with four valves; cells one or two-seeded.

Named after Correa, a Portuguese botanist. This is another desirable New Holland genus for the greenhouse, as it blooms in the winter. *C. alba* and *rufa* have white flowers, the latter has rusty-coloured leaves; *virens* has green; *speciosa,* red and green, and there is a variety with larger flowers; *pulchella* is very pretty, with scarlet blossoms, and it has varieties with rose-coloured, and red and white flowers. These beautiful plants are easily increased by ripened cuttings being planted in sand under a bell-glass; the following are varieties:—*bicolor, picta, brilliant, curiosa, magnifica,* etc.

ERIOSTEMON.

Gen. Char. (*Decandria Monogynia.*) Calyx five-parted; petals five; stamens ten, with hairy filaments; anthers terminal; style short; capsules five.

A genus of very ornamental Australian plants for the greenhouse, with white, pale red, or lilac flowers, appearing from March to September. The species are *buxifolium, gracile, lanceolatum, obovatum, glaucescens, nereifolium, nodiflorum, cuspidatum, myoporoides, linearifolium, oblongifolium, latifolium, salicifolium,* and *intermedium.* The last species should always be introduced, as it is covered with pretty white blossoms during the early spring months, and gives a gay look to the greenhouse; its leaves are small but numerous, and covered underneath with oil-glands; the flowers are rather large, petals white tinged with rose-colour, and also the bud, so that altogether it has a handsome appearance. They thrive best in peat soil and sand, in well-drained pots, which should be changed as the plants increase in size; in summer they require a good supply of water; they are increased by cuttings.

O. Jewitt lith. Vincent Brooks Imp.

Eriostemon intermedium.

ADENANDRA.

Gen. Char. (*Pentandria Monogynia.*) Flower inferior; calyx five-parted; petals and stamens inserted in the calyx; stamens ten, of which every other one is sterile; anthers with a gland at the end.

The name of this genus arises from Greek words meaning *gland* and *stamen,* from the peculiarity of a gland existing on the stamens. They are Cape plants of great beauty. *A. uniflora, acuminata, speciosa,* and *linearis* have white and pink flowers; the first are solitary, with a fringed calyx, *speciosa* has them in an umbel; *amœna, villosa,* and *marginata* are blush-coloured; and *fragrans* is red-flowered and sweet-scented. These plants succeed best in a sandy peat mixed with a little loam.

A. alba is now formed into the genus *Coleonema* with the additional species *pulchrum, rubra,* and *tenuifolia;* they are elegant, evergreen Cape shrubs.

CROWEA.

Gen. Char. (*Decandria Monogynia.*) Calyx five-parted; petals five, sessile; stamens flat, awl-shaped, connected by entangled hairs; anthers united lengthwise to the filaments on their inner side; style from the base of the ovary; capsules five, united.

Named after Mr. Crowe of Norwich, a good botanist. *C. saligna* is from Australia, and is a valuable plant in the greenhouse, as it continues to produce its pretty pink star-like flowers almost all the year; there are also the species *elliptica, latifolia,* and *stricta.* They prefer a mixture of sandy loam and peat, not much water, and an airy situation.

DIOSMA.

Gen. Char. (*Pentandria Monogynia.*) Calyx five-parted; petals and stamens inserted in the calyx; nectary of five plaits; ovary crowned; capsule five-valved, each end with an elastic arillus.

The name is from the Greek for *divine* and *smell,* from the fondness of the Hottentots for the scent, though most Europeans dislike it; the former call it "Bucku," and use the powdered leaves to rub their bodies; it is the species *ericoides* they principally use. The species introduced into our greenhouses are *ambigua, ericoides, capitata, oppositifolia, cupressina, hirsuta,* and several others, with white or lilac flowers; they are handsome shrubs very like heaths, but the leaves are larger and the flowers are in bunches at the ends of the branches. Another genus, very similar to this,

called *Agathosma*, has several species, which are introduced into the greenhouse; the flowers are generally lilac, white, or pink, and the leaves like those of heaths; the latter are also used by the Hottentots to perfume their bodies, which renders them extremely disagreeable to Europeans. *Barosma* is another genus of the same character and habits.

LINACEÆ.

Exogens, with the divisions of the calyx three to five, not falling off. Petals the same in number, but soon fading, clawed, and growing below the germen. Stamens equal in number and alternate with the petals, arising from a disc below the germen. —Annual and perennial plants, with simple, entire leaves, opposite or alternate; most abundant in Europe, but found elsewhere; the properties are mucilaginous and fibrous.

LINUM. (Flax.)

Gen. Char. (*Pentandria Pentagynia.*) Flowers inferior; petals five; capsule ten-celled.

The Celtic word for thread is *lin*, whence the Latin *linum*. The garden is adorned with several species of this genus, but the greenhouse also boasts of its Flax-plant, as the species *L. trigynum* is worthy of a place, for it produces

its pretty yellow flowers from October through the winter to March; this circumstance makes it valuable, though otherwise it is insignificant in size, and has no scent: it is an Indian species. *L. Mexicanum* has also a yellow flower, appearing from August to November; *Africanum* and *quadrifolium* yellow, and *grandiflorum*, crimson-flowered, are African species; *Cumingii* is from Chili; these last flower in summer. The soil should be peat, loam, and sand.

OXALIDACEÆ.

Exogens, with symmetrical flowers. Divisions of calyx five, imbricated, and not falling off. Petals five, equal, clawed, spirally twisted in bud, occasionally none. Stamens ten, more or less united together, some longer than the others. Fruit membranous or drupaceous. Leaves simple or compound.—Herbaceous plants, trees, or undershrubs; natives of hot and temperate climates; properties acid.

OXALIS. (Wood Sorrel.)

Gen. Char. (*Decandria Pentagynia.*) Divisions of calyx five, distinct, or united at the base; petals five; stamens united at the base, the five outer shortest; styles five, pencil-shaped or capitate at the end; capsule oblong or cylindrical.

The name is derived from the sharp or sour properties of the juices of this genus. There are many species, both hardy and also inhabitants of the greenhouse, and very pretty plants they are, besides being particularly useful, as there are species which flower in the spring, and others in the autumn. Out of the eighty or ninety species a choice may be made which will keep the house constantly gay; it will be useless to enumerate so many names, as a list may be obtained at the cultivators'; a few only will be noticed. *O. Bowiei* is a very beautiful species from the Cape, having flowers of a fine rosy red, with a yellow tube; it will live in the open air, but flowers very profusely in the greenhouse, especially if it be allowed a period of rest at midsummer: it should have a sandy loam. *O. Brasiliensis*, a very lovely plant, is a native of Brazil, with rose-coloured flowers which appear in May, and is more tender than the last, not bearing to be placed out-of-doors. *O. crenata*, from Lima, is nearly hardy, but looks well under shelter; its fine orange-coloured flowers make a pleasing contrast to the above-mentioned species. *O. speciosa, elegans, cuprea,* and *spectabilis* are interesting species, indeed all the species from the Cape are worthy of a place in the greenhouse; they are easily increased by offsets, and should be grown in light

peaty soil, which should never be allowed to become hard: when the flowering is over, they should not be watered, but allowed to rest; those that have flowered in the spring may be hardened in August by being placed in the open air and slightly watered, then the leaves begin to appear, and in September they may be replaced in the greenhouse where it is sunny and airy, and they will flower profusely.

GERANIACEÆ.

Exogens, with usually symmetrical flowers. The divisions of the calyx five, not falling off, more or less unequal, one sometimes spurred at the base. Petals five, clawed, twisted in bud. Stamens having the filaments united, twice or thrice as many as the petals. Ovary composed of five carpels placed round a long, awl-shaped torus. Fruit formed of five one-celled shells, each being terminated by the hardened style, which finally curls back from the base. Leaves single or compound.—Herbaceous plants and shrubs; natives of many parts of the world; properties astringent and aromatic.

ERODIUM.

Gen. Char. (*Monadelphia Pentandria.*) Calyx five-leaved; petals five; scales five, alternate with the filaments, and honey-

glands at the base of the stamens; seed-vessels five, awned, one-seeded.

Named from a Greek word signifying *heron's bill,* which the seed-vessel somewhat resembles. *E. incarnatum,* from the Cape, has a flesh-coloured flower, and is worthy of a place in the greenhouse, flowering from May to July; *Reichardi,* with white flowers; *crassifolium,* a native of Cyprus, and *laciniatum,* of Crete, have lilac flowers.

PELARGONIUM.

Gen. Char. (*Monadelphia Heptandria.*) Calyx five-parted, the upper segment ending in a nectariferous tube running down the peduncle; corolla five-petaled, irregular.

Named from the Greek for *stork,* in allusion to the shape of the fruit. This noble genus of plants is almost entirely from the Cape of Good Hope, and greatly we are indebted to that locality for plants which render our greenhouses and rooms so gay for many months in the year: they are easily cultivated and increased, and are made to bear their beautiful blossoms with very little trouble to those who possess a greenhouse. Don, in his catalogue of plants cultivated in the Cambridge Botanic Garden, enumerates more than

five hundred species and varieties, and these are constantly increasing by the care and attention bestowed on them by cultivators. Every year the sight is dazzled at the botanic *fêtes* by the colour and variety displayed in these plants; they seem, in short, to be brought to perfection both in size and beauty. They are commonly known by the name of Geraniums, but from these they differ in having seven fertile stamens and irregular flowers. The old favourite, the Horse-shoe or Scarlet Geranium, is known as *Ciconium zonale*, and has now become so hardy that it only requires the frame in winter. The *Pelargonium* is a true greenhouse plant, though it will bear the outer air for a time in the summer: some of the varieties are good bedding plants, as they flower well, and are of a dwarf character: others have variegated leaves, and make a pleasing variety, some of them have the leaf of a light green, with a border of broad or narrow white, golden, or light orange, or even pink; a few have silvery variegated foliage: these have the flowers scarlet, pink, or orange-scarlet. Pelargoniums with sweet-scented leaves are not uncommon, as the *citriodora, betulæfolium, capitatum, quercifolium,* and many varieties. A good selection of these plants may be made by applying to some of the great cultivators, as Messrs. Henderson and Co., and others.

The following plan, mentioned in the 'Floricultural Magazine,' seems a simple and efficient method of cultivating Pelargoniums. After they have flowered, which is generally by the middle of August, they should be cut down rather close, they will then put out fresh shoots; when these are about a quarter of an inch long, take them out of the pots, remove the earth from the roots, thin the main roots, and shorten the others, so as to make them small enough for small-sized pots; plant them in these with fresh earth, and put them into a cool frame or pit, shutting them up close till they are well established; then expose them to the air to harden, and take them into the greenhouse when the cold weather arrives: in the spring they require moving into larger pots, and by repotting them during the summer several times, a succession of flowers may be kept up for some months. The soil should be loam, peat, and manure.

CARYOPHYLLACEÆ.

Exogens, with symmetrical flowers and conspicuous corolla. Divisions of calyx four or five, or united into a tube, not falling off. Petals four or five or more, frequently split at the edges into two parts. Stamens usually twice as many as the petals, or

equal, or fewer. Leaves entire.—Herbaceous plants generally, inhabiting principally temperate and cold climates, or, if hot, growing in elevated situations; properties slightly medicinal; flowers showy.

DIANTHUS. (Carnation, Pink.)

Gen. Char. (*Decandria Digynia.*) Calyx cylindrical, one-leaved, with scales at the base; petals five, clawed; stamens ten; styles two; capsule cylindrical, one-celled.

The name of this favourite flower is derived from the Greek, and means *divine flower,* or flower of Jove. The genus is so well known in the garden, that description here would be superfluous, and it is only mentioned to point out that what are called by cultivators "Perpetual Carnations" are extremely useful for decorating the greenhouse during the autumn and winter, as they flower very freely at those seasons, and are well worthy of an introduction where there is room. A few varieties procured at the cultivators' before autumn, to begin with, is the best plan. Messrs. Henderson and Co. recommend the following, amongst others, for this purpose:—"Admiration," dark plum-colour, large and fine; "Attila," clear white ground, striped, and spotted with bright scarlet; "Arc-en-ciel," scarlet-flake; "Beauty," bright rosy pink; "Belle Zora," bright purplish-crimson,

edged and mottled with white; "Cobalt," silvery-white, slightly spotted with purple; "Coquette," white, edged with pink; "Grenadier," very rich dark buff; "Isis," white, mottled with salmon, etc. etc.

AMARANTACEÆ.

Exogens, with membranous and dry flowers in heads or spikes, usually coloured, and buried in imbricated bracts. Divisions of calyx three to five, membranous, not falling off, herbaceous, and coloured. No petals. Stamens growing below the germen, either five or some multiple of that number.—Herbs or shrubs, with simple leaves, without stipules; natives principally of the tropics; the properties of the leaves are mucilaginous.

CELOSIA. (Cock's-comb.)

Gen. Char. (*Pentandria Monogynia.*) Divisions of calyx three, coloured like a corolla; stamens united at the base by a plaited nectary; capsules opening horizontally.

Named from the Greek for *burnt*, as the flowers of some species appear as if singed. The curious and very handsome species of this genus are really stove-plants, but *C. cristata* and its varieties may be introduced into the greenhouse after they have been brought forward in a greater heat;

they are annuals, from Asia, with very curious red flowers growing in crested heads, often of large size, which make a great show amongst other plants. These heads are compoundly waved and folded, and the whole is beset with conglomerated flowers with minute bracts; the size of this curious head is increased by culture, and shifting from small to larger pots as they increase in size; the crest is sometimes made to be of the enormous size of "twenty inches in length and eight or ten across." The seeds should be sown in March, and placed in a hotbed; when old enough, they should be potted singly in small pots, and thence moved to larger; in May they may be removed to the greenhouse to flower.

Subclass III. PERIGYNOUS EXOGENS.

Stamens growing to the side of either calyx or corolla. Ovary superior or nearly so. Flowers having stamens and pistils in the same or different flowers.

MESEMBRYACEÆ.

Exogens, with numerous conspicuous petals, forming showy flowers, which open only under the influence of the sun. Divisions of calyx usually five. Petals numerous, in many rows. Sta-

mens many, arising from the calyx.—Shrubs or herbaceous succulent plants, with opposite, simple, fleshy leaves; principally natives of the Cape.

MESEMBRYANTHEMUM. (Fig Marygold.)

Gen. Char. (*Icosandria Polygynia.*) Calyx five-cleft; petals many, linear; stamens and styles many; capsules turbinate, fleshy, inferior, many-seeded.

These plants having flowers which only expand in the sun, the name arises from the Greek for *midday*. This genus of Cape plants has a very extensive assortment of species, which require a dry greenhouse, but otherwise little care and attention; they are very singular plants, with thick leaves of grotesque shapes, but the flowers of most of them are very beautiful, the petals of brilliant colours and of a lasting nature, with a handsome centre; they only open to the sun. The species are so numerous, amounting to several hundreds, that it is useless to mention their names; if this genus be a favourite, the amateur may easily obtain a list, and make a selection of those having handsome flowers or peculiar leaves; they are often divided into sections according to their growth, as those that have no stem, or very short, and the leaves usually large; those having a stem and clustered leaves; those with the stem prostrate or

creeping; one section has the leaves perfoliate; others have hatchet-shaped leaves, and others again have them three-cornered, or warted, dotted, rounded, or without warts; in short there is an almost endless variety in the shape of the leaves, and the flowers are of very various hues. Many of these plants will bear the open air in the summer, if the soil be dry, and they bloom very profusely when so treated, but they require winter shelter in the greenhouse, or they will do in a frame; the dwarf kinds require but little water, and none when in the dormant state; they should be grown in poor soil to make them flower well, and in small pots; the larger and more woody kinds will take more water when flowering, and the soil may be a little richer.

THYMELACEÆ.

Exogens, with flowers without petals generally, or sometimes with many, which are scale-like. Flowers in heads or spikes, terminal or axillary, or solitary. Calyx inferior, tubular, coloured, generally four-cleft. Stamens definite, inserted in the tube, either four or eight.—Shrubby plants, very seldom herbaceous, with tenacious bark. Leaves entire, alternate or opposite; natives of the cooler parts of India and South America, and occasionally of Europe, abundant at the Cape and New Holland.

PIMELEA.

Gen. Char. (*Diandria Monogynia.*) Flowers having no corolla; calyx funnel-shaped, with a four-cleft limb, stigma capitate.

The name seems to be derived from the Greek for *fat.* This is a handsome genus of greenhouse shrubs from Australia. *P. hypericina* is a slender ornamental shrub, with numerous heads of pale yellow flowers, appearing from March to June; it is a hardy greenhouse plant, and thrives vigorously. *P. graciliflora* has pure white flowers with a slender thread-formed tube, and narrow leaves; it flowers very freely, and the beautiful blossoms continue a long time unfaded; *P. longiflora* has large and globose heads of pure white blossoms terminating the wavy and slender branches; *P. sylvestris* has pink and white flowers, and should have an airy greenhouse; *P. lanata* and *Nieppergiana* have white flowers; *P. hispida* has red flowers in heads, the calyx densely clothed with long, rather stiff hairs, so that the flowers look feathery; in Edwards' Botanical Register it is said that "these hairs are long, very transparent tubes, with a considerable number of minute particles within their cavity, showing that motion in the fluids of plants which forms so curious a species of circulation in their system,

and which seems to be universal in hairs, so long as they are living." *P. macrocephala* is a Swan River species and is found easy of culture and blossoms freely in the summer; the flowers are very numerous and of a very pale rose-colour, the stamens are very conspicuous, and the anthers orange-red. Besides these species there are *decussata*, *Hendersonii*, and *spectabilis*, pink-flowered; *linifolia*, *glauca*, etc., white-flowered; *clavata*, yellow-flowered, besides several more. They all require sandy peat and not much water, and are increased by cuttings.

GNIDIA.

Gen. Char. (*Octandria Monogynia.*) Calyx funnel-shaped, four-cleft, with from four to eight scale-like petals at the orifice; nut somewhat like a drupe.

One of the names given by the ancients to the *Daphne*. Cape shrubs, suitable to the greenhouse, and having the flowers fragrant at night. *G. pinifolia*, *radiata*, *juniperifolia*, and *capitata* have white flowers; *simplex*, *biflora*, *stricta*, and others, yellow; *imberbis*, *imbricata*, etc. straw-coloured flowers. These plants should be potted in sandy peat, and may be readily increased by cuttings.

O. Jewitt lith.

Vincent Brooks Imp.

Pimelia macrocephala.

LACHNÆA.

Gen. Char. (*Octandria Monogynia.*) Flowers in heads; calyx four-cleft, with an unequal limb; filaments long, with an unequal insertion; nut somewhat drupaceous.

The heads of flowers are very woolly, whence the name, from the Greek. These are also Cape shrubs for the greenhouse, with the heads of flowers generally clothed in wool. The species are *buxifolia* and *eriocephala*, white, and *purpurea*, purple-flowered. Soil sandy peat and loam.

PASSERINA.

Gen. Char. (*Octandria Digynia.*) Calyx four-cleft and naked; style filiform, lateral, and long; stamens inserted on the tube; nut one, coated; seed one.

Named from the Latin for *sparrow*, from the seeds having an appendage like the beak of a sparrow. A genus of Cape plants for the greenhouse, of which *P. grandiflora*, producing a large white flower in May or June, is the most ornamental; the rest are *uniflora*, *tenuiflora*, *filiformis*, *capitata*, *ciliata*, and others, which have either white or straw-

coloured flowers. Young cuttings of these plants root easily in sand, under a glass.

STRUTHIOLA.

Gen. Char. (*Tetrandria Monogynia.*) Calyx tubular, having eight glands at the mouth; berry without juice, one-seeded.

From the Greek for *a sparrow,* from the pointed seed-vessel resembling the beak of that bird. A genus of rather pretty greenhouse plants from the Cape, of which *stricta, pubescens, longiflora, glabra, juniperina,* and some others, are introduced, as they are of easy culture and hardy under shelter.

DAPHNE.

Gen. Char. (*Octandria Monogynia.*) Calyx four-cleft, like a corolla, withering, including the stamens; ovary inferior; drupe one-seeded.

The Greek name for *laurel.* A few of these handsome evergreens are introduced into the greenhouse, as their fine leaves, early flowers, and sweet scent make them useful. *C. odora,* from China, is very sweet-scented; it has blush-coloured or red flowers, and a variety has variegated leaves:

they flower from December to March. *D. Indica* has pure white flowers, and a finer scent even than the last, a small plant being sufficient to scent a house, and for this reason should not be omitted; its leaves are larger than the last. *D. hybrida* has purple flowers, which last nearly all the year; it is a handsome species and nearly hardy; *papyracea* and *Japonica* are also greenhouse plants.

PROTEACEÆ.

Exogens, with flowers having the calyx four-leaved or four-cleft. No corolla. Stamens four, opposite the segments of the calyx. Leaves hard, dry, divided or not, their skin often equally covered on both sides with stomata.—Shrubs or small trees; natives principally of the Cape and New Holland.

BANKSIA.

Gen. Char. (*Tetrandria Monogynia.*) Calyx four-parted; stamens immersed in the concave ends of the segments; scales four; ovary two-celled.

Named after Sir Joseph Banks. A genus of very curious Australian evergreen shrubs, of which several species have been introduced into our greenhouses: the individual flowers

are small, but they grow in heads, somewhat in the form of a bottle-brush, and are generally either straw-coloured, yellow, green, or red; the leaves are of very varied forms, some are hairy, others quite smooth.

DRYANDRA.

Gen. Char. (*Tetrandria Monogynia.*) Calyx four-parted or four-cleft; stamens immersed in the concave ends of the segments; scales four; common receptacle flat.

Named after Mr. Dryander, a botanist. This genus resembles the last in general characters, but many of the species are very like Ferns in appearance, having their leaves deeply divided and covered with brown hairs; their flowers are of the same character as the *Banksia:* these two genera may be seen in perfection in Kew Gardens, where a house is devoted almost exclusively to them.

In this Order are also the genera *Telopea, Leucadendron, Grevillea, Hakea, Anadenia, Lomatia, Lambertia, Protea,* etc., all very curious, but more generally cultivated in botanic gardens and large conservatories than in greenhouses; they will therefore not be described here. Of *Grevillea* the following species are occasionally introduced:—*acanthifolia,*

flexuosa, lavandulacea, punicea, robusta, rosmarinifolia, and *sulphurea; Hakea* has about fifty species; *Lambertia* eight or ten. Loam, peat, and sand suit these plants.

FABACEÆ.

Exogens, with flowers either having no petals, or many; a papilionaceous corolla, or a leguminous or pod-shaped fruit. Calyx five-parted, the segments often unequal and variously combined. Petals five or none, inserted into the base of the calyx, either papilionaceous or regularly spreading. Stamens uncertain in number, either distinct or the filaments united in one or two sets. Fruit either a pod or a drupe.—Herbaceous plants, shrubs, or large trees, more or less natives of every part of the world; the properties of some are poisonous, others are extremely valuable as food.

PODALYRIA.

Gen. Char. (*Decandria Monogynia.*) Calyx five-cleft, unequal, pushed inwards at the base, standard larger than the rest; stamens joined at the base; pod ventricose, many-seeded.

Cape shrubs, with papilionaceous flowers, and generally very silky leaves; the flowers are handsome, generally purple, a few white, and others lilac; some of them flower a long

time, making them useful in the greenhouse. They should be planted in sandy loam and peat, and increased by cuttings planted in sand, and covered with a hand-glass.

CHOROZEMA.

Gen. Char. (*Decandria Monogynia.*) Calyx half five-cleft, two-lipped; keel ventricose, shorter than the wings; style short, hooked; stigma oblique and obtuse; pod ventricose and many-seeded.

Some species of this genus are climbing plants, as *C. angustifolia, scandens, rhombea,* and *spectabile,* the two former with yellow, the two latter with scarlet, flowers. *C. varium* has orange and crimson flowers, and has several varieties; *ilicifolia, nana, Henchmannii, triangularis,* and *ovata,* have scarlet flowers; *cordata* has them mixed scarlet and purple; *platylobioides,* yellow; *Hügelii,* blush-colour, and *spartioides* of a yellowish-brown; *Laurenceanum* is a pretty species also: these beautiful plants may be increased by cuttings in sand under a glass, and by seeds, which ripen readily.

DILLWYNIA.

Gen. Char. (*Decandria Monogynia.*) Calyx five-cleft, two-lipped, narrow at the base; petals and stamens falling off, inserted into the middle of the tube of the calyx; standard twice as broad as long, spreading, two-lobed; style hooked; pod inflated.

Named after Dillwyn, a botanist. Handsome Australian plants, of which many of the species are introduced into the greenhouse. *D. speciosa* has very beautiful flowers of yellow and crimson hues; *ericifolia, rudis, tenuifolia, pungens, cinerascens,* etc. are yellow-flowered; *clavata* is yellow and brown; besides these there are the species *cinnabarina, contesta, Drummondii, elegans, Henchmannii, glycinifolia, rigida, scabra, glaberrima, splendens, sulphurea,* etc., all worthy of a place in the greenhouse. Young cuttings root freely in sand under glass; and as the plants do not bear much wet, the pots must be very well drained. *D. obovata* is now called *Eutaxia myrtifolia,* and there are three other species belonging to the new genus, as *Baxteri, floribunda,* and *pungens;* the flowers are yellow.

PODOLOBIUM.

Gen. Char. (*Decandria Monogynia.*) Calyx five-cleft, two-lipped; keel compressed, the length of the wings, which are equal to the expanded standard; ovary many-seeded, in a single row; pod stalked, oblong, narrow.

Named from the Greek for *foot,* as the pod has a foot-stalk. These are also showy Australian papilionaceous shrubs, with yellow flowers, and holly-like leaves; as *P. trilobatum, heterophyllum, scandens, staurophyllum, Hügelii,* and *chorozemifolium.* They must be treated like the rest of these Australian plants.

GOMPHOLOBIUM.

Gen. Char. (*Decandria Monogynia.*) Calyx five-parted, nearly equal; standard unfurled; stigma simple; pod many-seeded, nearly spherical, very obtuse, smooth.

The word means a *club* or *wedge,* from the form of the pod. A delicate genus of Australian plants, some of which are elegant climbers; as *G. polymorphum,* with scarlet, and *venustum,* with purplish flowers; also *tenue, aduncum,* and *Drummondii;* those not climbing are *barbigerum, fimbriatum, grandiflorum, intermedium, latifolium, splendens, Hendersonii,*

O. Jewitt lith.

Vincent Brooks Imp.

Gompholobium venustum.

versicolor, etc. etc.; the flowers are principally yellow, but some are tinged with purple. *G. venustum* is truly named "the graceful *Gompholobium*," for it is a most lovely greenhouse plant, and should be in every collection: it is from the South-west of Australia, and is a small shrub, with long delicate branches, and pinnated leaves, formed of eight or ten very narrow pinnæ, the edges turned back almost touching behind; the flowers are of a rich rose-purple colour, in drooping corymbs. These plants, being found principally in dry, exposed situations, should not have much moisture, or much heat in winter; they should have a cool airy place in the greenhouse: the soil should be sandy peat, and they may be increased by cuttings, or seed.

OXYLOBIUM.

Gen. Char. (*Decandria Monogynia.*) Calyx deeply five-cleft, rather two-lipped; keel compressed and the length of the wings, which are equal to the open standard; style ascending; stigma simple; pod many-seeded, ventricose, ovate and acute.

Named from the pointed pod. Australian plants for the greenhouse, the species being as follows:—*O. arborescens, ellipticum, Pultenæa,* and others, have yellow flowers; *retu-*

sum and *obovatum*, orange; *obtusifolium* and *cordifolium*, scarlet flowers. The species *ellipticum* is a desirable plant, for it has a profusion of yellow flowers, in terminal-headed spikes, on every subdivision of its numerous branches, and these continue in succession for a long period. They require sandy peat soil, and are increased by cuttings or by seeds.

BRACHYSEMA.

Gen. Char. (*Decandria Monogynia.*) Calyx five-cleft, only slightly unequal, with a ventricose tube; standard shorter than the compressed keel, which is as long as the wings; ovary with a stalk, surrounded at the base by a little sheath; pod many-seeded, ventricose.

The name is derived from the Greek for *short* and *standard*. A genus of handsome plants from Australia, some of which are climbers; as *B. latifolium*, with scarlet flowers, and *undulatum*, with straw-coloured flowers; besides these there are also *brachiatum*, *Drummondii*, and *villosum*, all suitable for training to the pillars of a greenhouse.

CALLISTACHYS.

Gen. Char. (*Decandria Monogynia.*) Calyx two-lipped; standard erect, keel and wings drooping; style incurved; stigma simple; pod stalked, woody before ripening.

The plants have fine spikes of flowers, and the name is derived from *beautiful* and *spike*. *C. ovata, lanceolata,* and *linearis* have yellow flowers, and *longifolia* has reddish straw-coloured flowers; the latter is from the Swan River; *C. retusa* is another, which grows three or four feet high, with each branch producing a head of deep yellow flowers. They are very handsome greenhouse shrubs, which flower very freely; the soil should be loam and peat; cuttings readily take root, or seeds may be sown.

PULTENÆA.

Gen. Char. (*Decandria Monogynia.*) Calyx five-cleft, with even-sized lips, two-bracted; ovary sessile, two-seeded; style awl-shaped, ascending; stigma simple.

Named after Dr. Pulteney. There are many species of these pretty New Holland shrubs, which may be introduced with advantage into the greenhouse; the flowers are yellow,

and many of them brown on the outside; the following is a list of the principal:—*P. biloba, cordifolia, daphnoides, linophylla, ericoides, flexilis, obcordata, subumbellata, sericea, splendens, stricta, stipulacea,* etc.

GASTROLOBIUM.

Gen. Char. (*Decandria Monogynia.*) Calyx five-cleft, two-lipped, without bracts; petals of equal length; ovary two-seeded, stalked; pod ventricose.

The word means *something inflated,* from the form of the pod. Beautiful New Holland shrubs, with orange or yellow flowers; the specific names are, *bilobum, calycinum, Drummondii, epacrioides, caudatum, gracile, pyramidale, velutinum, spinosum, spectabile, trilobatum,* etc.

DAVIESIA.

Gen. Char. (*Decandria Monogynia.*) Calyx angular, without bracts; keel shorter than the standard; ovary stalked, two-seeded; pod compressed, angular, opening with elasticity.

Named after Mr. Hugh Davies, a Welsh botanist. Plants from Australia, somewhat resembling furze; they have

narrow straight leaves and yellow flowers. The species most approved of for the greenhouse are *acicularis, umbellata, Hookerii, latifolia, physoides, pungens, ulicina,* etc. *D. physoides,* a native of Western Australia, is a species spoken of in the following terms of praise in the 'Botanical Magazine':—"The flowers are exceedingly handsome, variegated with several colours—orange, red, green, and black—produced copiously on the branches, and they continue a long time in perfection, so that the plant is highly ornamental to the greenhouse in the months of April and May. The whole plant is rigid and glaucous, the lower leaves often small and terete, the upper ones oblong and obliquely cuneate, so that the shape a good deal resembles a hatchet, more dilated at the upper angle, mucronated on the other, and marked with two nerves on each side." They require a turfy peat soil, and cuttings root in pots of sand and covered with a hand-glass.

CASSIA.

Gen. Char. (*Decandria Monogynia.*) Calyx five-leaved; petals five; three upper anthers sterile, three lower beaked; flowers nearly regular.

The name is supposed to be a Latinized form of a Hebrew word. This is an extensive genus of plants from various parts of the world; many are introduced into the stove, a few are tolerably hardy, and the following are showy for the greenhouse :—*C. corymbosa, Australis, Barclayana, obovata, Capensis, Marylandica,* and several others. Cuttings should be put in sand and covered by a hand-glass; they root freely in moist heat.

PLATYLOBIUM. (Flat Pea.)

Gen. Char. (*Diadelphia Decandria.*) Calyx bracteate, two-lipped, upper lip round, large, and bifid; stamens all united; pod stalked, compressed, winged at the back, many-seeded.

Named from the Greek for *broad* and *pod,* in allusion to the form of the seed-vessel. Australian plants of considerable beauty, of which the species *Murrayanum* is very striking; the flowers are very numerous, and only expand their vivid orange petals in the daytime, closing them at night: *obtusangulatum* has its flowers larger than the last, and the lobes of the calyx particularly so; "the standard of the flower is, in the inside, of a bright orange with a red ray in the centre, outside, red with a broad, grey-brown

cloud at the edge; wings deep orange-red; keel of two whitish petals, deep orange towards the extremity;" the old leaves of this plant have very obtuse angles; *P. formosum* and *triangulare* have yellow flowers, also *ovatum* and *parviflorum*. These plants require sandy peat, and may be increased by cuttings or seeds.

JACKSONIA.

Gen. Char. (*Decandria Monogynia.*) Calyx five-parted, nearly equal; corolla and stamens falling off; ovary two-seeded; style awl-shaped and filiform; pod moderately inflated, ovate or oblong, with valves downy inside.

Named after a botanist of the name of Jackson. A genus of New Holland plants, principally with yellow flowers, as *scoparia, horrida* (large-spined), *spinosa, densiflorum, grandiflorum, monosperma*, etc. They are increased by cuttings.

LIPARIA.

Gen. Char. (*Diadelphia Decandria.*) Calyx five-cleft, with the lower segment long; wings two-lobed below; three teeth of the larger stamen shorter than the rest; pod ovate.

Named from the Greek for *brilliant*, on account of the shining surface of the leaves. Cape plants of some beauty, with yellow flowers; *sphærica* has them in heads, and they are of an orange hue; *parva* has them small and yellow, appearing from March to May, whilst the former are later; the leaves of both species are smooth. They should have a mixture of loam and peat, and do not require much water; the cuttings should be planted in sand.

LODDIGESIA.

Gen. Char. (*Diadelphia Decandria.*) Standard much shorter than the wings or keel.

Named after Mr. Loddiges, whose reputation is so well known to cultivators of flowers. *L. oxalidifolia* is a pretty Cape shrub, with small rose-coloured pea-like flowers, and leaves like an *Oxalis*. The soil should be sandy peat.

LOTUS.

Gen. Char. (*Diadelphia Decandria.*) Wings of the corolla cohering by their upper edge; filaments dilated upwards; pod cylindrical and straight.

The name is from the Greek. Many plants of this genus are hardy, and look gay in the garden; a few require the shelter of the greenhouse, and make a show in the summer: as *Australis* (or *Candolleanus*), with red flowers; *albidus*, with white; these are Australian species; *jacobæus* and *atropurpureus*, with dark purple flowers, from the Cape de Verde Islands; *Creticus*, from the Levant, *glaucus*, from Madeira, *sessilifolius*, from the Canaries, and *anthylloides*, from the Cape, all have yellow flowers. These are shrubs, and may be increased by cuttings.

GOODIA.

Gen. Char. (*Diadelphia Decandria.*) Calyx with two nearly equal lips, upper half bifid, acute; standard unfurled and large; stamens all united; pod stalked, compressed, about two-seeded.

Named after Mr. Good, a gardener at Kew Gardens, who died whilst collecting seeds in New Holland. Handsome evergreen shrubs; *polysperma*, *subpubescens*, *latifolia*, and *pubescens*, are from Van Diemen's Land; all these have yellow flowers, and are worthy of a place in the greenhouse.

HOVEA.

Gen. Char. (*Diadelphia Decandria.*) Calyx bilabiate, the upper lip half bifid, abruptly blunt; stamens all united; keel blunt; pod sessile, roundish, ventricose, two-seeded.

Named after Mr. Hove, a Polish botanist. There are many pretty species of this genus for the greenhouse, with either blue or purple flowers. The principal are *Celsii, ferruginea, ilicifolia, lanceolata, pungens, purpurea, rosmarinifolia* and several others; they are easily cultivated in peat, and light loam and sand.

BOSSLÆA.

Gen. Char. (*Diadelphia Decandria.*) Calyx two-lipped, upper lip largest, half bifid, obtuse; stamens all united; pod compressed, stalked, many-seeded, thickened at each edge.

Named after M. Boissieu Lamartinière. This is a very beautiful genus of Australian plants, suitable for the greenhouse, and having flowers either yellow-orange, yellow-brown, or yellow mixed with purple; the most interesting are *alata, cordata, cordifolia, ensata, disticha, Hendersonii, linophylla, lenticularis, paucifolia, Scolopendra, tenuicaulis,* etc. They thrive best in a mixture of sandy loam and peat, and

the pots should be well drained, for they are injured by too much water.

INDIGOFERA.

Gen. Char. (*Diadelphia Decandria.*) Calyx spreading; keel with a spreading, awl-shaped spur on each side.

The word means a plant bearing indigo, the dye so called being obtained from several species of this genus. There are a considerable number of species introduced into the stove, and a few very ornamental, into the greenhouse. *I. amœna* has scarlet flowers; *filifolia* and *frutescens,* red, *juncea, heterotricha, lotoides,* and several others, rose-coloured; these are Cape plants; *Dosna* is a pretty species from Nepaul, with rose-coloured flowers; *monophylla,* purple; *sylvatica,* rose-lilac; *Australis,* lilac-flowered, from Australia; *atropurpurea* has dark flowers, in racemes two or three inches long, from Nepaul; there are also *alba, decora, floribunda, purpurea,* and *stachyodes,* all desirable species for the greenhouse.

KENNEDYA.

Gen. Char. (*Diadelphia Decandria.*) Calyx two-lipped, upper

emarginate, lower trifid, equal; standard reflexed and recurved; wings pressed to the keel; keel remote; stigma blunt; pod oblong.

This handsome genus is named after a Mr. Kennedy, and the species are very beautiful climbers for the greenhouse, particularly adapted for covering trellis-work or pillars. *K. Marryattæ,* named after Mrs. Marryatt, of Wimbledon, was introduced from the Swan River. Its flowers are of a pretty scarlet colour, with a little rose and yellow mixed; these flowers are produced in profusion in the early part of summer, making it a very desirable species. *K. nigricans* is a native of New South Wales, its foliage is small, and the flowers very dark, with a patch of yellow; *K. longiracemosa* has rose-coloured flowers, which appear in spring; *K. rubicunda* has dingy crimson flowers; *prostrata* and *coccinea,* scarlet; these were formerly considered as Glycines. These beautiful plants are of easy culture, thriving best in peat-earth and loam very well drained, and are increased by cuttings and also by seeds, which they produce freely. Some beautiful species have been separated from this genus to form the following genera:—*Hardenbergia,* containing the species *monophylla* (a beautiful plant with bright purple flowers, of which there is a variety called *lon-*

giracemosa), *ovata, Comptonia, cordata, macrophylla,* and *digitata,* climbing plants, with purple or scarlet flowers; *Zichya,* containing *coccinea, tricolor, angustifolia, pannosa, villosa,* etc., are also pretty climbers, with purple or scarlet flowers.

CYTISUS.

Gen. Char. (*Diadelphia Decandria.*) Calyx two-lipped; pod attenuated at the base.

The origin of the name is doubtful. This genus contains the well-known Laburnum, and other hardy species; the following may be introduced with advantage into the greenhouse, as they are handsome shrubs:—*C. elegans,* from the Cape, *spinosus,* from the South of Europe, *proliferus,* from the Canaries, and *orientalis,* from the East, have yellow flowers; *filipes,* from Teneriffe, and *albidus,* from the South of Europe, have white flowers. Besides these, there are *Atleeanus, monospermus, racemosus,* and *Webbianus,* which are also useful and pretty plants; *C. racemosus superbus* is particularly recommended.

SWAINSONIA.

Gen. Char. (*Diadelphia Decandria.*) Calyx five-toothed; standard unfurled, larger than the blunt keel; stigma terminal; style bearded lengthwise in front, not bearded at the back.

Named after Mr. Isaac Swainson, of Twickenham. A pretty genus of leguminose shrubs for the greenhouse; *S. coronillæfolia* and *lessertiæfolia* have purple flowers; *galegæfolia*, scarlet, and *astragalifolia*, white flowers; *S. Greyana* is a finer plant than the rest, flourishing well in a cool greenhouse, and will probably bear the outer air in summer; this plant is slightly shrubby, the leaves long, pinnated, with about eight pairs of leaflets and an odd one; the racemes of flowers are often a foot long, formed of blossoms of a large size and purple colour, the standard having a white spot in the centre; altogether it is a very handsome plant, and is common about Port Adelaide and the Murray River; the other species are also Australian. *Osbornii* is a very desirable species; *galegæfolia* has two varieties, *alba* and *pallida*. Cuttings root freely, and the soil should be loam, leaf-mould, and peat.

DOLICHOS.

Gen. Char. (*Diadelphia Decandria.*) Standard with two small callosities at the base, parallel, oblong, compressing the wings beneath.

Dolichos is a Greek word meaning *long*. This is a genus of climbing plants, some of them reaching to the top of high conservatories, or even to the tops of tall trees in their native country. Some of the species require the heat of the stove; a few are even hardy enough to bear the open air in summer, such as *heterophyllus, monachalis, Niloticus, Sinensis, vexillatus,* and *melanophthalmus;* the following require greenhouse shelter entirely:—*D. lignosus,* from the East Indies, and its variety called the "Sickle-podded," have rose-coloured or purple flowers; *hirsutus,* purple, and *phaseoloides,* lilac-flowered, a native of China; *pubescens,* straw-coloured, from South America; *lobatus,* from the Cape, and *reticulatus,* from Australia, both with purple flowers; *Capensis,* also from the Cape, has yellow flowers.

These climbers are easily raised from cuttings, but are best propagated by seeds; the soil should be peat and loam.

ERYTHRINA. (Coral Tree.)

Gen. Char. (*Diadelphia Decandria.*) Calyx bilabiate; standard very long, lanceolate; pod slightly twisted.

Named from the Greek for *red,* from the brilliant red colour of the flowers, which are particularly handsome in this genus; the plants are small shrubs, usually grown in the stove, but a few will do well in the greenhouse. *E. Crista-galli* has fine scarlet flowers in spikes, the stalks prickly and glandular, and the leaves in threes; this and *laurifolia* are natives of Brazil, and will bear the frame very well in the winter; *lithosperma* has scarlet flowers and stony seeds, *Bidwillii,* crimson flowers, both natives of Australia; *Humeana, nana,* and *Caffra* are from the Cape, the latter has purple flowers; *herbacea* and *carnea* are American species, the former with scarlet, and the latter with flesh-coloured flowers.

In winter these plants should be placed in a dry situation in the greenhouse and have little or no water; when they show flower-buds in the spring, it is a good plan to plunge them in moist heat, when the flowers will be finer: cuttings strike readily.

O. Jewitt lith.

Vincent Brooks Imp.

Mirbelia Meisneri.

MIRBELIA.

Gen. Char. (*Decandria Monogynia.*) Calyx five-cleft, two-lipped; pod two-celled, with each suture bent inwards.

Named after M. Mirbel, a French botanist. An Australian genus containing the following species of very pretty and showy greenhouse plants:—*M. reticulata, speciosa, pungens, dilatata, rubiæfolia, floribunda,* and *Meisneri,* are purple-flowered; *grandiflora* has reddish-yellow flowers; *Meisneri* is smaller than *dilatata,* but a most lovely greenhouse plant, and deserves to be introduced into every collection; the leaves are very curious in appearance, as they are wedge-shaped, rigid, waved, crisp, and at the apex three-cleft, and of a dark green; the flowers are numerous, red-purple, and of a deeper hue at the lower part of the petals. These plants are very desirable for the greenhouse, as they are gay with flowers in the spring; they require peat or heath-mould and very well drained pots, but the soil must not be suffered to get quite dry.

AOTUS.

Gen. Char. (*Decandria Monogynia.*) Calyx five-cleft, two-lipped; stamens falling off; ovary two-seeded; style filiform; pod two-valved, and no appendage to the seed.

The name comes from the Greek for *wanting ears*, alluding to the want of appendages to the seeds. A genus of New Holland shrubs, suitable to the greenhouse, as *gracillimus*, with orange-coloured flowers; *villosa, virgata,* and *incana,* with yellow, and *lanigera* with deeper yellow flowers; *intermedia* is another pretty species.

BURTONIA.

Gen. Char. (*Decandria Monogynia.*) Calyx deeply five-cleft; corolla falling off; petals nearly equal; ovary two-seeded; style awl-shaped, dilated at the base; stigma blunt, beardless; pod roundish, moderately inflated, no appendage to the seed.

A genus of New Holland shrubs suitable to the greenhouse. The species are *sessilifolia, villosa, scabra, minor,* and *pulchella;* the flowers either yellow, lilac, or purple. They should be grown in sandy loam and peat, and the pots ought to be very well drained, as they do not thrive with much water.

CROTALARIA.

Gen. Char. (*Diadelphia Decandria.*) Pod inflated, swollen, stalked; filaments united with a dorsal fissure.

The seeds in the inflated pods of this genus when shaken make a noise like a particular Greek musical instrument; whence the name. An extensive genus, having more than one hundred species; many have been introduced into the stove, a few into the garden, and several into the greenhouse, but they are not very much esteemed, except perhaps *C. elegans*, from the Cape, which has crimson flowers; *acuminata, virgularis, spartioides, purpurea, pulchella, argentea, villosa*, and *angustifolia* are also Cape species; *elliptica* is a native of China: the greater number have yellow flowers. These plants only require common culture.

CYCLOPEA.

Gen. Char. (*Decandria Monogynia.*) Calyx five-cleft, unequal, pushed inwards at the base; standard with longitudinal wrinkles, wings with a transverse plait; stamens falling off; stigma bearded on one side; pod compressed, many-seeded.

Named from the Greek for a *circle* and *foot*, in consequence of the folded circle which is seen at the base of the pods. *C. genistoides* is a Cape plant of some beauty, with numerous narrow, awl-shaped leaves and yellow flowers of some size; the species *latifolia* and *galioides* are also intro-

duced into the greenhouse; they have yellow flowers and are natives of the Cape.

EUCHILUS.

Gen. Char. (*Decandria Monogynia.*) Calyx deeply five-cleft, two-lipped, the upper lip very large, with two bracts at the base; keel as long as the wings; pod compressed.

The name alludes to the large upper lip of the calyx. *E. obcordatus* is a pretty New Holland shrub for the greenhouse, with yellow flowers and heart-shaped leaves.

POINCIANA. (Flower Fence.)

Gen. Char. (*Decandria Monogynia.*) Calyx five-parted; petals five, clawed, the upper dissimilar; stamens very long, all fertile; pod compressed, flat.

Named after De Poinci, a promoter of botany. *P. pulcherrima* is the beautiful Flower Fence of the Indies, with orange flowers; *elata* has yellow flowers; *insignis,* copper-coloured, and *regia,* scarlet; these are stove-plants, but may be removed to flower in the greenhouse; and *P. Gilliesii,* with orange-scarlet flowers, is sufficiently hardy to bear the

greenhouse at all seasons, and is very ornamental; the open showy flowers and long projecting stamens are very striking from June to September: it seems to be readily increased by cuttings. The soil, sandy loam and peat.

CORONILLA.

Gen. Char. (*Diadelphia Decandria.*) Calyx two-lipped, upper teeth joined at the base; standard scarcely longer than the wings; pod round and jointed, straight, falling to pieces when ripe.

Named from *corona,* a crown, from the tufts of flowers. Though the plants of this genus are tolerably hardy, some of them are introduced into the greenhouse as they flower early and look very gay. *C. glauca* has a bright yellow flower with a very agreeable scent, and continues in beauty from February for many weeks; *C. valentina* flowers later, and is useful in taking the place of the first, but the scent is not so pleasant. Both these plants thrive well in rooms if they are carefully watered; the soil should be turfy peat and sandy loam, and the pots ought to be well drained.

SCOTTIA.

Gen. Char. (*Diadelphia Decandria.*) Calyx imbricated with bracts, five-toothed, with nearly equal teeth; standard complicate, shorter than the wings, which are as long as the keel; stamens all united; pod stalked, compressed, thickened at each edge.

Named after Mr. R. Scott, professor of Botany at Dublin. This is an Australian genus of shrubs: *dentata,* with straw-coloured flowers, and *angustifolia,* with yellowish-red flowers, are often grown in the greenhouse; also *lævis* and *trapeziformis.* Cuttings root in sand under glass.

TEMPLETONIA.

Gen. Char. (*Diadelphia Decandria.*) Calyx without bracts, with five nearly equal teeth; keel oblong; stamens all united, with uniform anthers; pod flatly compressed, many-seeded.

Named after Mr. Templeton, a promoter of Botany. Australian shrubs for the greenhouse, with handsome scarlet flowers; the species are *glauca* and *retusa,* so named from the smooth and retuse leaves of the two species.

ACACIA.

Gen. Char. (*Polygamia Monœcia.*) In those flowers which have both stamens and pistils, the calyx is five-toothed; corolla five-parted; stamens from four to one hundred; pod two-valved; the barren flower is the same, but yields no pod.

A Greek name, said to be derived from a word signifying *sharp,* as some of the species have thorns. This very ornamental genus is well known to all lovers of plants, and is especially adapted to the greenhouse from the elegant light foliage and varied appearance of the species; they are also of easy culture. There are above two hundred species introduced, most of which are suitable to the greenhouse; a few only, requiring the heat of the stove. It would be useless enumerating the names of all these plants; a few of those usually introduced are as follows, which comprise some of those species procurable at Henderson's Nursery Grounds, London. *A. affinis, argyrophylla, armata, celastrifolia, coccinea, cordata, dealbata, densiflora, dentifera, diffusa, dolabriformis, Drummondii, glaucescens, grandis, lanuginosa, longifolia, lophantha, Mirbelii, ornithophora, ovata, pulchella, rotundifolia, squamata, vestita,* etc.

Sandy loam and peat is the soil they generally prefer, and they are easily increased by cuttings. They do not re-

quire great heat, a cool part of the greenhouse is sufficiently warm, and even the air of a room suits them very well, where their elegant plumes of foliage, formed by the pinnated leaves, have a very pleasing effect; they flower in the autumn or spring, and many of them have a delightful scent. *A. pensans* is a climbing species, and very beautiful, its long feathery foliage having an elegant effect; in its native country, Madeira, it soon reaches the height of the tallest tree, and there spreads in every direction; its flowers are sulphur-colour, intermixed with dark red. *A. celastrifolia* is a very desirable species for the greenhouse, as its flowers are so fragrant that they scent the whole house with the odour of whitethorn; these flowers are most abundant, making the branches bow down with their weight, they are in round heads formed of a few pale yellow flowers, the stamens of each being innumerable. *A. leptoneura* is a remarkably pretty species from its graceful branches, which in the flowering season are covered with deep orange-coloured heads of flowers; the leaves, or phyllodia, as they are called, are two or three inches long, filiform, wavy, and rough on the surface. *A. hispidissima* has very numerous balls of flowers of a rich yellow colour, forming a dense head; the leaves are small and pinnated. A considerable

number of the species are natives of New Holland, but they are found also in the East Indies, the Cape, and South America.

MIMOSA. (Sensitive Plant.)

Gen. Char. (*Polygamia Monœcia.*) In those flowers having both stamens and pistils the calyx is five-toothed; corolla, when present, five-toothed; stamens eight; pod separating into one-seeded joints; barren flower—calyx, and corolla when present, five-toothed, stamens eight.

The name is said to be derived from the Greek for *buffoon,* because the sensitive leaves appear to play with those who touch them. The Sensitive Plants, *Mimosa sensitiva* and *pudica,* require the stove to be in a flourishing condition, but they are occasionally introduced into the cooler house; they are natives of Brazil, and have purplish flowers. *M. prostrata,* the spreading *Mimosa,* can be trained to walls in the greenhouse, and its pretty pinnated leaves have a good effect. The soil should be light sandy peat and loam; cuttings root in sand with heat.

ROSACEÆ.

Exogens, having the calyx four or five-lobed, with a disc. Petals many, growing to the sides of the calyx. Stamens many, arising from the calyx just within the petals. Ovaries superior, either solitary or several. Fruit either one-seeded nuts, or little bags containing several.—Herbaceous plants or shrubs; leaves simple or compound, alternate, often with stipules, occasionally dotted; natives chiefly of temperate or cold climates; fruit edible, none being unwholesome.

ROSA. (Rose.)

Gen. Char. (*Icosandria Polygynia.*) Calyx urn-shaped, five-cleft, fleshy, contracted at the orifice; petals five; seeds bony, hairy, included in the fleshy calyx; stamens and styles many.

The name arose from the Celtic word for these beautiful flowers. The beauty and fine perfume of the plants of this genus have made it a universal favourite, and no garden of any pretension is now thought complete without its rosery, or *rosetum,* and its collection of "standards." Notwithstanding the profusion which may exist in summer out-of-doors, it is very delightful to see a few rose-trees in full bearing at a season when, in ordinary circumstances, not a leaf has yet appeared, and this can only be done by forcing, and the shelter of the greenhouse. Almost any

kind may be introduced for this purpose, and they are then grown in pots; those growing on their own roots and such as are tender may be thus treated, as described in a work called 'The Villa Garden:'—"If intended to bloom in the greenhouse, or for forcing, they should be taken from their pots, the balls of earth loosened and considerably reduced, and repotted in a size larger than the pots in which they were received; light sandy loam and well-rotted dung or leaf-mould, in equal quantities, is the best compost; if previously grown in peat the same should be used again, or the roots should be cleared entirely of the peat, before planting in the compost, as the fibres do not readily strike into loam from the peat; then place in an airy greenhouse, near the glass. Water them abundantly after being potted a few days; they should be syringed in sunny weather twice a day, morning and evening, with soft water. If to be forced, they must be removed to the forcing-house early in January, keeping a gentle heat from 50° to 60° in cloudy weather, admitting very little air with great caution during the sunshine as spring advances; syringe twice a day; this gives health and vigour to the plants, and keeps off the red spider, which takes up its residence under the leaves." Some cultivators put them in the

forcing-house earlier than here mentioned, making them still more acceptable and rare. Another writer of authority in 'The Rose Garden,' a useful work for the lover of these beautiful plants, advises that when Roses are to be cultivated under glass, whether intended to be forced or not, they should be thinned and shortened in autumn; and that, if Roses are required to bloom as early as February and March, artificial heat must be employed from the middle of December, commencing with a gentle heat, increasing gradually, and allowing of a variation of eight or ten degrees between the night and day temperature; if a forcing-pit is at hand this will be the best place, but care must be taken that the *Aphis*, or green-fly, does not attack them; should this pest appear, the pit must be filled with tobacco-smoke till they are all killed. The Tea-scented and Chinese Roses, also some of the Noisettes and Bourbon, are tender, and will be the best for growing in the greenhouse.

SAXIFRAGACEÆ.

Exogens, with flowers having the stems simple, often naked. Calyx superior or inferior, of four or five divisions, which cohere more or less at the base. Petals five, inserted between the lobes

of the calyx, or none. Stamens five or ten, inserted either into the calyx or beneath the ovary, which latter usually consists of two parts.—Herbaceous plants growing in patches; leaves either divided or entire, alternate; natives of the northern and mountainous parts of the world; properties astringent.

SAXIFRAGA. (Saxifrage.)

Gen. Char. (*Decandria Digynia.*) Calyx five-parted; petals five; stamens ten; styles two; capsule two-beaked, one-celled, many-seeded.

From *saxum frango,* to break the stone, a name not now applicable, as this supposed medicinal quality is found not to exist. Amongst the many hardy species of Saxifrage one is often introduced into the greenhouse or room, the *S. sarmentosa,* or trailing Saxifrage, a native of China, and introduced about eighty years ago: the leaves and trailing stems are its chief attraction; the former are dark green, spotted and streaked with white, red underneath, and very hairy; from the root proceed long threads, bearing at intervals young plants, which, if lying in their natural position on the ground, would take root and become independent plants; if the pot be suspended these hang down all round, and are exceedingly pretty and very curious; they look very well in the window of a room or on a pedestal; the flowers

are white, and grow on a spirally twisted stalk. These plants require a good supply of water, and flourish well with a little retained in the saucer.

HYDRANGEACEÆ.

Exogens, with flowers usually in flattened bunches (cymes), those in the centre having both stamens and pistils, those at the margin sterile, and having larger petals than the others. Calyx adhering more or less to the ovary, four or six-toothed. Petals four or six, inserted within the edge of the calyx, falling off. Stamens from eight to twelve, in two rows.—Shrubs, with perfectly opposite simple leaves; natives of the temperate parts of Asia and America; the leaves of a few used as tea.

HYDRANGEA.

Gen. Char. (*Decandria Digynia.*) Calyx superior, five-toothed; petals five; stamens ten; styles two; capsule two-celled, two-beaked, opening by a hole between the beaks.

Named from the Greek for *water* and *vessel,* on account of the genus delighting in water; the plants therefore appeal to the cultivator by their name for the fluid which is so necessary to their existence. The hardy species, *H. hortensis,* is often introduced into the greenhouse, and if well

O. Jewitt lith.

Vincent Brooks Imp

Hydrangea Japonica.

supplied with water, becomes a large plant, particularly if it be transferred every season into a larger pot or tub; it may be set out all the summer in a moist spot sheltered from the sun, and will flower profusely. A few plants are worth sheltering in the greenhouse in winter, for the sake of their fine bushy heads, which may become exceedingly valuable in summer to fill up gaps, unavoidably formed by the death of some more hardy plant. *H. Japonica*, a native of the island of Nipon, and much cultivated by the Japanese, is a very handsome plant, and has two varieties, one with rose-coloured flowers, and the other with blue, the latter is the handsomest: the compound umbel of flowers is flat, the fertile and small flowers being blue, the sterile at the edge of the group, and having from three to five very large divisions, which are white, tinged with blue at the base; these form the flower and are very conspicuous; this variety makes a good show in the greenhouse, and is quite hardy there. Another species, named *stellata*, is also introduced, as well as *Belzonii*.

LYTHRACEÆ.

Exogens, with the calyx tubular, ribbed, often oblique. Pe-

tals inserted between the outer lobes of the calyx, soon falling, sometimes wanting. Stamens inserted into the calyx below the petals, equal, double, or four times the number of the latter. Ovary superior, from two to six-celled.—Herbs, rarely shrubs; leaves opposite, entire; natives of Europe, America, and India; the properties astringent, and some are used as dyes.

CUPHEA.

Gen. Char. (*Dodecandria Monogynia.*) Calyx from six to twelve-toothed, occasionally gibbous at the base; petals six, inserted into the calyx, or none; stamens twelve; style one; capsule one-celled and curved.

Named from the Greek for *curved,* from the form of the capsule. A genus of American plants, of which several are very ornamental, as *ignea,* with scarlet tubes, tipped with black and white; *strigilosa,* flowers red and yellow; and *Llavea,* with very pretty crimson flowers, which appear from June to August; these are favourite greenhouse plants, and bear turning out in the summer very well; they should have a soil of peat and loam. *C. silenoides* is a Mexican annual; the five petals of the flower are spreading, and are of a deep purple blood-colour, the two upper have a pale margin; this plant is now tolerably hardy, and makes a handsome bed, but the seeds must be raised on a hotbed.

RHAMNACEÆ.

Exogens, with small flowers, having the calyx four or five-cleft. Petals distinct, hooded or rolled in, inserted into the orifice of the calyx, occasionally none. Stamens opposite the petals, Disc fleshy. Ovary superior, or half-superior, from two to four-celled.—Trees or shrubs, often spiny; leaves simple, alternate, very seldom opposite; natives of many parts of the world; the berries of some medicinal.

CEANOTHUS.

Gen. Char. (*Pentandria Monogynia.*) Petals five, resembling a bag, vaulted; berry dry, three-celled, three-seeded.

The name is derived from the Greek for *to prick*. *C. azureus* has beautiful blue flowers, *cuneatus* white, *macrocarpus* straw-coloured flowers; these are American species; *C. floribundus, papillosus, dentatus, thyrsiflorus, verrucosus, rigidus,* and *Lobbianus,* from California, are beautiful species, having numerous crowded heads of flowers of the richest blue, the first of the hue called *mazarine:* these are great ornaments to the greenhouse; other species are hardy. The soil should be sandy loam.

APOCYNACEÆ.

Exogens, with the calyx free, five-parted, and not falling off. Corolla monopetalous, often having scales in the throat, regular, five-lobed, twisted when in bud, and falling off. Stamens five, arising from the corolla; filaments distinct; anthers adhering firmly to the stigma. Stigma contracted in the middle, and assuming much the appearance of an hour-glass. Leaves opposite. —Trees or shrubs; natives principally of the tropics; flowers showy.

NERIUM. (Oleander.)

Gen. Char. (*Pentandria Monogynia.*) Corolla salver-shaped, crowned at the mouth with little lacerated appendages, segments of the corolla twisted; filaments inserted into the middle of the tube; anthers arrow-shaped, adhering to the stigma by the middle.

The name arises from the Greek for *damp,* as the plants like moist situations. *N. Oleander* is a beautiful evergreen shrub, with its leaves three together, and producing very pretty pink flowers; if well treated it flowers freely in our greenhouses, and has several varieties, as the white-flowered, the *splendens,* the variegated, the large-flowered, etc. etc.; it is sometimes difficult to make this plant blossom, but it is recommended that it should be kept cool during winter,

and then placed in a high temperature and watered well till it shows flower, when the plant may again be restored to the greenhouse, after being fresh potted in rich loam, which should be well drained: this species is common in the South of Europe. *N. odorum,* the sweet-scented species, comes from the East Indies, and requires the stove or warm greenhouse; *thyrsiflorum* is more hardy, from Nepaul, and will thrive in the cooler house; it has rose-coloured flowers.

ALYXIA.

Gen. Char. (*Pentandria Monogynia.*) Calyx five-parted; corolla monopetalous, five-lobed; stamens five, growing on the corolla; anthers adhering to the stigma.

A genus found useful in the greenhouse or conservatory, from the deep green leaves and sweet-smelling flowers. *A. ruscifolia,* called the Butcher's-broom-leaved *Alyxia,* has white flowers, smelling like Jessamine, which are very pretty, appearing at the termination of every little branch. *A. daphnoides, Forsteri,* and *buxifolia* are all useful in the greenhouse, and are easily propagated by cuttings: they are Australian shrubs.

MANDEVILLEA.

Gen. Char. (*Pentandria Monogynia.*) Calyx five-parted, not falling off; corolla monopetalous, regular, five-lobed, twisted when in bud, and falling off; stamens five, arising from the corolla; anthers adhering to the stigma.

M. suaveolens, a South American plant, is a charming climber for the greenhouse, as its growth is very rapid, and it produces clusters of very sweet-scented white flowers during the summer; it was at first thought to require the stove, but, though only introduced in 1839, it now bears the cooler air: it should be grown in a mixture of peat and loam, and allowed to rest during winter.

GENTIANACEÆ.

Exogens, with the flowers terminal or axillary, generally regular. Calyx divided, not falling off. Corolla monopetalous, proceeding from below the ovary, not falling off; the limb regular, sometimes furnished with delicate fringes; lobes from four to ten, occasionally extending at the base into a bag or spur. Stamens on the corolla, equal to the segments.—Natives of most parts of the world; every part of these plants is bitter, and used medicinally.

CHIRONIA.

Gen. Char. (*Pentandria Monogynia.*) Flowers monopetalous, inferior; calyx five-parted, erect; corolla equal, with a five-parted limb; filaments from the mouth of the tube; capsules ovate; seeds numerous, small.

Named after Chiron, one of the fathers of medicine and botany. A genus of Cape evergreen shrubs of great beauty, with rose or purple-coloured flowers; the species are—*jasminoides, baccifera, linoides, pedunculares, decussata, floribunda, frutescens, glutinosa,* etc. *C. pedunculares* deserves a place in every greenhouse; the flowers are rosy-purple and large, and are produced from June to November; this plant will even succeed in the open border in a warm situation. The soil, sand, peat, and loam.

LOGANIA.

Gen. Char. (*Pentandria Monogynia.*) Corolla rather bell-shaped, with the throat having shaggy hair, and the limb five-parted; stigma club-shaped.

Named after a Mr. Logan. *L. floribunda* has compound racemes of white flowers at the axils of the leaves; this

species and *revoluta* are from New South Wales: *latifolia* has broad leaves and white flowers also, and is a native of New Holland. They are useful in the greenhouse, as they flower early, about April; ripened cuttings strike well in sand under a glass.

OLEACEÆ.

Exogens, with flowers in terminal or axillary racemes. Calyx divided, inferior. Corolla monopetalous, four-cleft, occasionally of four petals. Stamens two. Leaves opposite, simple or pinnated.—Trees or shrubs, natives chiefly of temperate latitudes; medicinal properties of various kinds.

CHIONANTHUS. (Fringe Tree.)

Gen. Char. (*Diandria Monogynia.*) Flowers inferior, monopetalous, regular; corolla four-cleft, segments very long; drupe one-seeded, with a furrowed nut.

The name arises from the Greek for *snow* and *a flower*, from the whiteness of the corolla. Very ornamental shrubs for the greenhouse, with bunches of white flowers, and long leaves; *axillaris* and *retusus* are suitable for the greenhouse; *Virginica* and *maritima* are more hardy, and will bear the

open air, the two last are from North America, the former from New Holland. They prefer damp peat.

OLEA. (Olive Tree.)

Gen. Char. (*Diandria Monogynia.*) Flowers inferior, monopetalous, regular; corolla four-cleft, segments rather egg-shaped.

The Greek name for the Olive-tree, *O. Europæa,* which is so celebrated in Italy, Spain, and France, for the useful oil produced from its fruit; it is a hardy shrub even in England. *O. fragrans,* and a variety called *fragrans major,* are introduced into the greenhouse from China, as both their flowers and leaves are fragrant, and on this account the Chinese are very fond of them; the flowers are white: other species may be also grown, as *Capensis, undulata,* and *verrucosa,* from the Cape; *excelsa* from Madeira, and *paniculata* from New South Wales. Loam, and peat soil.

SOLANACEÆ.

Exogens, with the inflorescence variable. Calyx generally five-parted inferior, not falling off. Corolla monopetalous, growing

from below the ovary; the limb generally five-cleft, regular or somewhat unequal, falling off. Stamens inserted upon the corolla, equal to the segments in number. Leaves alternate, undivided or lobed.—Herbaceous plants, or shrubs, abounding in the tropics, and frequent in the more temperate parts of the world; many of them deadly poisons, others used as food.

DATURA. (Thorn-apple.)

Gen. Char. (*Pentandria Monogynia.*) Flowers inferior; corolla funnel-shaped; calyx falling off; capsule two-celled, four-valved.

The name of this noble genus is derived from the Arabic word *Tátórah*. Some of the species are hardy and belong to the garden, but they are surpassed in beauty by those in the greenhouse, particularly by *D. cornigera*, called the Horned Datura, from the lobes of the corolla being terminated by a long, recurved point; this plant is thus described in the 'Botanical Magazine:'—"The plant has a shrubby stem about three feet high, the young branches and almost every part clothed with soft down; leaves chiefly confined to the extremity of the branches, ovate, petiolate, acuminate, entire or sinuate, or angled; peduncles axillary, single-flowered, curved downwards, so that the flower is drooping; calyx spathaceous, long, narrow, cylindrical, split on one side for more than three-quarters of its length, with

five prominent ribs, gradually tapering into an entire, long, subulate, patent or recurved point, nearly as long as the tube of the corolla; corolla large, funnel-shaped, white or cream-coloured, striated, the mouth spreading, five-lobed, the lobes terminated by a long, subulate, spreading or recurved point." This fine plant merely requires the protection of a cool greenhouse, and in summer succeeds well in the open air, at the time it is in its greatest beauty, when its noble pendent and delicate-coloured flowers make a great show. Soil, rich fibry loam, and sand.

BRUGMANSIA.

Gen. Char. (*Pentandria Monogynia.*) Calyx bursting at the side, not falling off; corolla funnel-shaped; anthers glued together; capsule unarmed.

Named after Brugmans, a botanist. Plants very similar in appearance to those of the last genus. *B. arborea*, sometimes called *candida*, was thought to require the stove constantly, but it is now introduced with success into the greenhouse; it has a remarkably handsome flower, the tubular calyx is often four inches long, opening on one side to allow the elegant white corolla to appear, which has a

long narrow trumpet-shaped tube, spreading at the edge into five long and pointed angles; these lovely flowers have a powerful scent, which adds greatly to their value. *B. suaveolens* has smooth stalks and leaves, which distinguish it from the last, in which they are downy. *B. bicolor* or *sanguinea* has orange and scarlet flowers, and bears the greenhouse perfectly, as well as *Knightii* and *lutea*. The species *sanguinea* is tolerably hardy, and will even bear the open air in a warm border, where it makes a splendid appearance, the plant often being five feet high, the flowers eight inches long, and their colour splendid, being of an orange-red outside and fine scarlet within. Soil as for *Datura*.

CESTRUM.

Gen. Char. (*Pentandria Monogynia.*) Calyx funnel-shaped; segments acute, edged; stamens with or without a tooth; anthers four-cornered; berry one or two-celled; seeds few, angular.

A genus of no great beauty, but some of the species are sweet-scented; many have been introduced into the stove, principally from the West Indies, a few into the greenhouse, as *C. aurantiacum*, with rather showy orange flowers,

succeeded by white berries; *roseum*, with rose-coloured blossoms. These plants have not much more than their sweet scent to recommend them to notice.

NIEREMBERGIA.

Gen. Char. (*Pentandria Monogynia.*) Corolla salver-shaped, five-lobed and five-rayed, with a very slender, cylindrical tube.

A beautiful genus, nearly allied to *Petunia*, and very ornamental in the greenhouse, as the species flower profusely, and look well suspended from the roof in ornamental baskets; the species are *calycina*, *filicaulis*, *gracilis*, and *intermedia*; they are from South America, but will bear planting out into the garden in the summer, where they look best in baskets on a lawn; if planted in a bed they look remarkably well, as, if kept to grow quite low, they will soon form a mass of flower, and should be pegged down, for the lateral shoots continue to grow when so treated. New plants must be raised in sand every year by taking cuttings in September, and keeping them in the frame or greenhouse. The soil should be loam and peat.

SOLANUM.

Gen. Char. (*Pentandria Monogynia.*) Calyx not falling off; corolla rotate or bell-shaped, five-lobed and plaited; anthers in some degree united, opening by a double pore at the end; berry two-celled, many-seeded.

The name is of doubtful origin. This genus is not often introduced into the garden, as there are no very particularly handsome species; it contains the Potato, the Egg-plant, and the Love-apple. There are however a few introduced into the greenhouse, among which the Egg-plant, *S. ovigerum,* is sometimes grown as a curiosity, and it is rather ornamental when it produces its white egg-shaped fruit. These plants are raised from seed sown in March, placed in a hotbed, and when large enough potted singly, and this repeated as they increase in size; when they show flower they should receive a good supply of water, and when the fruit is set, they may be placed near the glass in the greenhouse. *S. crispum* and *jasminoides* are also recommended. The Love-apple is now called *Lycopersicum esculentum.*

PHYSALIS. (Winter Cherry.)

Gen. Char. (*Pentandria Monogynia.*) Calyx inflated; corolla

campanulate, rotate; stamens approaching each other; berry within the inflated calyx, two-celled.

Named from the Greek for *bladder*, from the inflated form of the calyx. The "Winter Cherry" of the garden, which is so great an ornament in the dull season, from the beauty of the lace-like calyx enclosing the golden fruit, is the *P. Alkekengi*, a native of Europe; another species, *P. somnifera*, from the East Indies, is introduced into the greenhouse, having clustered straw-coloured flowers, and ornamental fruit produced late in the year.

ASCLEPIADACEÆ.

Exogens, with flowers having the calyx five-parted, and not falling off. Corolla monopetalous, five-lobed, regular, generally imbricated in the bud, falling off. Stamens five, inserted into the base of the corolla, alternate with the segments of the limb. Anthers and stigma consolidated into a column. Leaves entire, opposite, sometimes alternate or whorled.—Shrubs, or occasionally herbaceous plants, often twining; natives principally of Africa, but extending to America, India, etc.; the properties of the juice are acrid and bitter.

HOYA.

Gen. Char. (*Pentandria Digynia.*) Corolla five-cleft; pollen-

masses fixed by the base, joined together at the base, compressed; stigma depressed, with an obtuse wart; seed-vessels smooth.

A genus named after a Mr. Hoy, gardener to the Duke of Northumberland. These lovely climbing plants, well known in the hothouse, where they display their beautiful waxy flowers in profusion, are rare in the greenhouse; but *H. carnosa*, from Asia, called the fleshy-leaved, with sweet-scented blush-coloured flowers in drooping, compact umbels, can be introduced with success, being of tolerably easy culture; *Australis*, from Australia, has white flowers; these are both climbing plants: *lanceolata*, also with blush-coloured flowers, but not climbing, is a native of Nepaul. These lovely plants may be propagated by cuttings in a moist heat, and when rooted the soil should be loam and peat.

ASCLEPIAS. (Swallow-wort.)

Gen. Char. (*Pentandria Digynia.*) Flowers inferior, monopetalous; corona five-leaved, with a process in the inside; pollen-masses fixed by a fine end; stigma depressed, blunt.

Name from Æsculapius. A genus of fine plants, many of which are hardy; the following require the shelter of the

greenhouse, and, from their singularity, are worthy of a place:—*A. salicifolia, angustifolia, rosea, linifolia, Mexicana,* and *linaria* are from Mexico and South America; *A. Douglasii,* from the Rocky Mountains, is a handsome plant, with long, rather narrow leaves, woolly underneath; the flowers in umbels, much crowded, and of a reddish-purple colour tinged with green; this species is also sufficiently hardy for the border. These plants prefer a light soil of rich loam and leaf-mould, and plenty of room.

CONVOLVULACEÆ.

Exogens, with the flowers terminal or axillary, one or many flowers together. Calyx not falling off, in five divisions, often very unequal. Corolla monopetalous, growing below the ovary, regular, and falling off, the limb five-lobed and plaited, the tube without scales. Stamens five, inserted into the base of the corolla, and alternate with its segments.—Herbaceous plants or shrubs, usually twining, abundant in tropical climates, rare in cold countries; leaves alternate, undivided or lobed, seldom pinnatifid; their juice medicinal, roots edible.

IPOMŒA.

Gen. Char. (*Pentandria Monogynia.*) Corolla funnel-shaped,

monopetalous, inferior; stamens included; stigma capitate; capsule three-celled.

Named from the Greek for *Bindweed* and *similar*, from the similarity to the Convolvulus. Some species of this beautiful genus are hardy, many are raised in the stove, and will not flourish in a cooler atmosphere; but the following will bear the greenhouse, and are highly ornamental as climbers:—*I. Purshii, candicans, tyrianthina, Michauxii, Carolina, sinuata,* and *longifolia* are American species, having either white, purple, whitish-red, or rose-coloured flowers; *pendula,* purple-flowered, is from Australia, and *dasysperma* is from the East Indies: with the exception of the last, these are perennials. *I. simplex,* a South African species, has a root about the size of an apple, very uncouth in appearance, and yet it produces the most lovely clusters of flowers from the base of the stem; in the 'Botanical Magazine' it is thus described:—"It is one of the Ipomœas that is best worth cultivating, for it only needs a small pot, placed in a greenhouse, and no trellis or apparatus to support the stems, which at most do not exceed a foot in length, and are clothed with long, slender, grass-like leaves;" these leaves are three or four inches long, narrow, and having waved margins: "the corolla is very large, of a

O. Jewett lith.

Vincent Brooks Imp.

Ipomæa simplex.

fine rose-colour, the tube slightly enlarged upwards, and expanding into the broad spreading limb:" after flowering the stem dies down to the roots. *I. Jalapa,* the plant which produces the medicinal substance known as Jalap, is now called *Exogonium purga,* and differs from the present genus in having the corolla tubular, and the stamens projecting from the opening; it is a lovely plant, and is nearly hardy, bearing a cool greenhouse or frame; the stem is climbing; the leaves heart-shaped, deeply lobed at the base; the flower of a fine form, and shining purplish-red hue. These plants require good soil.

CONVOLVULUS. (Bindweed.)

Gen. Char. (*Pentandria Monogynia.*) Flowers inferior, monopetalous, campanulate; stigmas two-cleft; capsules two-celled, two-seeded.

Named from *convolvere,* to entwine, one of the great characteristics of this pretty genus, of which we have so many hardy species in the garden; for the greenhouse there are *C. multifidus* and *alceifolius,* from the Cape; *lanatus, Cneorum,* and *tenuissimus,* from the Levant; *floridus, pannifolius, Canariensis, Masoni,* from the Canaries;

erubescens and *geniculatus*, from Australia; *Bonariensis*, from Buenos Ayres; *farinosus*, from Madeira, and *Italicus*, from Italy. Most of these plants are perennials, requiring a rich but light soil; the beauty of their flowers and their twining habit make them particularly desirable in the greenhouse for covering poles or trellis-work.

POLEMONIACEÆ.

Exogens, with the calyx inferior, formed generally like a prism, five-parted, not falling off, sometimes irregular. Corolla regular or nearly so, five-lobed. Stamens five, inserted into the middle of the tube of the corolla, and alternate with its segments. Ovary superior, three-celled.—Herbaceous plants, with opposite or occasionally alternate, compound or simple leaves; stem occasionally climbing; abundant in America in the temperate parts, less common in Europe and Asia, and possessing slightly medicinal properties.

CANTUA.

Gen. Char. (*Pentandria Monogynia.*) Flower monopetalous, funnel-shaped, inferior; capsule three-celled, three-valved; seeds winged; stigma trifid.

The Peruvian name for the genus. Very pretty green-

house shrubs; the species *bicolor, buxifolia, pyrifolia,* and *aggregata* may be introduced with advantage; the latter is now sometimes known as *Gillia aggregata,* it has scarlet flowers.

COBÆA.

Gen. Char. (*Pentandria Monogynia.*) Calyx five-cleft, bell-shaped, five-cornered and winged; corolla bell-shaped, with five blunt lobes; stamens curved down; filaments spiral; capsule obovate, from three to five-celled.

A Mexican genus, named after Cobo, a Spaniard. *C. scandens,* though now a hardy plant, is so well adapted as a greenhouse climber, that it will not fail to be introduced; its leaves are pinnated, with a branched tendril at the point, which is exceedingly amusing to watch, for whenever the stem wants support this tendril uncurls, and stretches itself out until it meets with something rough to cling to, there it inserts the little appendages at the ends, and takes fast hold; the beautiful bell-shaped flowers are large, at first green, then purple, becoming deeper in colour till they fall. The plant requires a rich sandy loam, and if favourably placed will grow many feet in a season, sending out side-shoots, which flower as well as the main stem. *C.*

stipularis and *macrostoma* have yellow flowers, and are also climbing plants of great beauty. They are all natives of Mexico.

PLUMBAGINACEÆ.

Exogens, with flowers either loosely panicled or contracted into heads, flowering irregularly. Calyx tubular, plaited, sometimes coloured, not falling off. Corolla of a very thin texture, monopetalous, with a narrow, angular tube, or of five petals, which have a long narrow claw. Stamens definite, opposite the petals,—in the monopetalous species growing from below the ovary,—in the polypetalous arising from the petals. Ovary superior. Leaves alternate or clustered, undivided, somewhat sheathing at the base.—Herbaceous plants or undershrubs; inhabitants of temperate parts of the world.

VALORADIA.

Gen. Char. (*Pentandria Monogynia.*) Calyx glumaceous and membranous; corolla tubular, salver-shaped, and five-parted; stamens five.

This genus greatly resembles *Plumbago,* and *V. plumbaginoides* was formerly known as *P. Larpentæ;* it is a lovely plant from China, having bright green leaves, and the

flowers in terminal heads, with bracts tinged with red, and ciliated, the calyx slender and tubular, the corolla with a long tube, and the limb salver-shaped and of a bright blue; stamens joined together at the base, anthers black and produced beyond the tube. This plant grows from cuttings, and is very ornamental in the greenhouse, where it should be potted in peat soil and vegetable mould mixed with lime rubbish; the pot should also be well drained.

STATICE. (Sea Lavender.)

Gen. Char. (*Pentandria Pentagynia.*) Calyx two-leaved, entire, plaited, membranous; petals five; flowers scattered in a panicle.

From the Greek for *to stop*, as the plants were used to arrest some disorders. The genus is well known in the garden, but there are some handsome species for the greenhouse, as *purpurata, scabra, rytidophylla,* and *cinerea,* from the Cape; *mucronata,* from the north of Africa; *arborea,* from Teneriffe: these have purple, lilac, or white flowers; besides these, *frutescens, Halfordii, imbricata, macrophylla,* and *Willdenovii* are recommended for the greenhouse. They are easy of culture, and the roots may be divided.

PRIMULACEÆ.

Exogens, with the flowers either on stalks from the root and in umbels, or arranged amongst the leaves. Calyx five-cleft, inferior, regular, and not falling off. Corolla monopetalous, regular, five-cleft. Stamens inserted on the corolla, equal in number to the segments, and opposite.—Annual or perennial herbaceous plants, sometimes almost shrubby; leaves usually at the root; common in the northern and colder parts of the world; some of them have medicinal properties, but they are most esteemed for their flowers.

CYCLAMEN.

Gen. Char. (*Pentandria Monogynia.*) Flower inferior; corolla monopetalous, reflexed; stigma acute; capsule one-celled, pulpy within.

The name is derived from the Greek for a *circle,* as the stalks, after the flower has faded, twist into numerous coils, and lie close to the ground till the seeds ripen. The hardy species of this pretty genus are well known, and the following should be introduced into the greenhouse, where they look well in the early season, when flowers are so valuable. *C. Persicum,* a native of Cyprus, has a white flower; and there are varieties either with sweet-scented or scentless, and with jagged purple-white or pure white flowers; these

blossom from February to April; *repandum* and *latifolium*, both frame-plants, may of course be introduced and forced in the greenhouse. *C. repandum* produces its rosy-red flowers in March, which last a considerable time. *C. Coum*, though hardy, is often introduced into the greenhouse, as it will flower before the others as early as December, and is very showy, though the flower is small, with the petals red and short. Rich loam is considered the best for these plants; they are said to thrive better for being near the glass, and should be watered slightly once a day.

ANAGALLIS. (Pimpernel.)

Gen. Char. (*Pentandria Monogynia.*) Flower inferior; corolla monopetalous, rotate; stigma capitate; capsule one-celled, cut round.

Named from the Greek for *to laugh*, as the plants removed diseases which caused low spirits. The Pimpernels are well known in the garden, but there are a few perennials which are worth introducing into the greenhouse, as *A. Monelli*, called the blue Italian Pimpernel, which has also several varieties, having lilac, purple, or scarlet flowers; *Webbiana*, with blue flowers, and *Marryattæ*, with copper-coloured corollas; be-

sides these there are *Andamanensis*, *Brewerii*, and *rubra grandiflora*; these three latter species are exceedingly pretty for suspending in baskets in the greenhouse. They require a light soil, and are increased by cuttings.

PRIMULA. (Primrose.)

Gen. Char. (*Pentandria Monogynia.*) Flowers inferior; corolla monopetalous, funnel-shaped, pervious at the orifice; stigma globose; capsule one-celled.

Named from *primus*, the first, the plants being remarkable for flowering very early in the season. The Primrose, Cowslip, etc., need not here be mentioned, as they are seldom or never introduced into the greenhouse, but the *Primula Sinensis*, or Chinese primrose, is quite deserving of a place in every collection, and is one of the gayest of winter plants; two or three pots of it will make a show, as the flowers are produced in fine heads when the plant is healthy, and these continue long in great beauty; there are generally several of them together, and whilst these are expanding, others are rising up to supply their place, and this succession will go on for a great length of time. A pot of this plant just at the time when the flowers are in the greatest beauty is a

great ornament to the sitting-room, and the change is not at all detrimental to it if care be taken that it is watered a little every day, but the mould must not be saturated. One variety of this plant has its petals fringed at the edge, which adds greatly to its beauty, and the flower is also larger, and deeper in colour; another variety is named the *alba plena*, and again another the *rubra plena;* these are both very showy. When the flowers decay they should be cut off, as that induces the plant to flower for a greater length of time.

JASMINACEÆ.

Exogens, with the flowers opposite, in corymbs, white or yellow, often sweet-scented. Calyx with from five to eight divisions or teeth, not falling off. Corolla monopetalous, proceeding from below the ovary, regular, with a tube, the top salver-shaped, with five or eight divisions, which lie laterally on each other, and are twisted in bud. Stamens two, growing on the tube.—Shrubs, often with twining stems; leaves opposite or alternate, mostly compound, ternate or pinnate; mostly tropical plants; flowers very fragrant and producing oil.

JASMINUM. (Jasmine.)

Gen. Char. (*Diandria Monogynia.*) Corolla five or eight-cleft,

monopetalous, regular; berry of two divisions; seeds solitary, with a covering.

The name is the Italian word for these plants. The well-known hardy species of Jasmine are often introduced into the greenhouse, as from their neat foliage, pretty flowers, and sweet scent they are very useful. There are many stove species, and a few intermediate between those and the hardy are adapted to the greenhouse; these are *J. gracile, acuminatum, volubile, Capense, ligustrifolium, grandiflorum, arborescens, glaucum,* and *Poiteau,* all climbers, with white flowers, and some having very sweet scent; *J. Azoricum* and *subulatum* are not climbing plants; *J. odoratissimum* has sweet-scented yellow flowers. *J. grandiflorum* is a valuable plant for training, and is extremely pretty and graceful from its large white and fragrant blossoms, which appear in July and August. These plants require no particular treatment, and soil formed of equal parts of loam and peat, with a little sand, suits them well.

EHRETIACEÆ.

Exogens, with regular, symmetrical flowers. Calyx inferior, five-parted. Corolla monopetalous, tubular, divided into as many

segments as the calyx. Stamens alternate with the segments of the corolla, and equal in number. Leaves simple.—Trees, or shrubs, or herbaceous plants, covered with a harsh down; natives mostly of the tropics, with some medicinal properties.

HELIOTROPIUM. (Turnsole.)

Gen. Char. (*Pentandria Monogynia.*) Calyx five-parted; corolla salver-shaped, orifice without teeth, limb five-cleft, folds plaited, simple or toothed; stamens included; stigma peltate; nuts four, cohering, without a common receptacle.

Named from the Greek for *sun* and *to turn*, as the flowers turn to the sun; *Turnsole* has the same meaning. *H. Peruvianum*, the favourite Heliotrope of our gardens, is in the winter an inhabitant of the frame or greenhouse, as it is killed by the frosts out-of-doors; after the shelter it has received, it amply rewards us by its sweet-scented flowers in the warm weather, and it is perhaps worth while to retain several pots of it to decorate the greenhouse at a time when it is comparatively empty. These plants are easily increased by cuttings taken in September (if they are required for planting out the following summer), and kept in the frame or greenhouse; but if it is thought desirable to have some in flower in the winter months, which is a great advantage, the cuttings must be put in during May, June,

and July, in succession, and they will be good flowering plants for autumn and winter in the greenhouse, where their gay flowers and sweet scent will reward the cultivator; these cuttings should be planted in light sandy soil, plunged in a cucumber or melon frame, and shaded from the sun; they should be watered and carefully attended to when necessary, and when struck should be repotted, after being a little hardened. *H. corymbosum* is also worth growing.

TOURNEFORTIA.

Gen. Char. (*Pentandria Monogynia.*) Corolla salver-shaped or rotate, naked at the orifice; berry two-celled; cells two-seeded, perforated at the end.

Named after Tournefort, a botanist. *T. heliotropioides,* a South American plant, is very like the Heliotrope, and has also pretty pale purple flowers; it will bear planting out, but requires the greenhouse or frame in the winter; *fruticosa* has white flowers, and is a shrubby plant from the Canaries, as well as *angustifolia,* with pale blue; *velutina* and *umbellata,* both with white flowers, are natives of Mexico. *T. heliotropioides* is quite worthy of a place in the greenhouse or garden, as it flowers in profusion from May to

O. Jewitt lith.

Vincent Brooks Imp.

Arnebia echioides.

September, and grows about two feet high; it has the disadvantage however of being without the sweet scent of the Heliotrope. It is easily increased by cuttings or seeds.

BORAGINACEÆ.

Exogens, having flowers in one-sided, curled spikes or racemes, sometimes solitary and axillary. Calyx not falling off, with four or five divisions. Corolla monopetalous, generally regular, four or five-cleft, imbricated in bud. Stamens inserted upon the corolla, equal to and alternate with the lobes. Ovary four-parted, four-seeded.—Herbaceous plants and shrubs; leaves alternate, often covered with asperities, consisting of hairs proceeding from a hardened base; natives principally of temperate climates, and having soft, mucilaginous properties.

ARNEBIA.

Gen. Char. (*Pentandria Monogynia.*) Calyx five-parted; corolla a long tube, throat naked, with the lobes rounded; anthers inserted within the tube.

A. echioides is a very pretty plant, and though sufficiently hardy to be planted out in the summer, is ornamental for the greenhouse, flowering in June and July, and being very gay; the large flowers grow in scorpion-like spikes, and are

yellow, with five deep purple spots at the throat, but these additions to the beauty of the flowers do not always appear. It is a native of Caucasus and Armenia.

LAMIACEÆ.

Exogens, with irregular, unsymmetrical flowers. Calyx tubular, inferior, lasting, regularly five or ten-toothed. Corolla monopetalous, growing below the ovary, the upper undivided or two-cleft, overlapping the lower, which is larger, and three-lobed. Stamens four, two long and two short, inserted upon the corolla. Leaves divided or not, covered with receptacles of aromatic oil. —Herbaceous plants or undershrubs; natives of temperate regions; properties fragrant and aromatic.

SALVIA.

Gen. Char. (*Diandria Monogynia.*) Corolla gaping, irregular, and monopetalous; filaments stalked; seeds naked.

The name arises from *salvare,* to save, from the supposed healing qualities. The aromatic plants of this genus are many of them hardy; those that are ornamental in the garden require the frame or greenhouse in the winter, as the beautiful deep blue and red flowering species, *S. splendens* and *patens.* Some must be confined to the greenhouse en-

tirely, as *incarnata, rosæfolia,* and others, from the Levant; *aurea, dentata,* and *Africana,* from the Cape; *leucantha, polystachya, excelsa, leonuroides, regia, coccinea, elegans, fulgens, pulchella, Mexicana,* etc. from America. The flowers of these plants are of various shades of red and blue; the species *splendens* and *patens* should always have a place in the greenhouse. Cultivators advise that shoots should be taken from the old plants in February or March; these to be cut close under a joint, and inserted in pots of white sand, and placed in a hotbed frame with a bell-glass over them, taking daily care to wipe the glass; in about six weeks they will be rooted sufficiently to bear removing to small pots and a rich light loam, and left in the hotbed till they are well grown; they may then be removed to the greenhouse, where they will flower well. In September a number of shoots may be treated in the same way, and they will flower during the depth of the winter, and be very ornamental in the greenhouse.

SCUTELLARIA.

Gen. Char. (*Didynamia Gymnospermia.*) Calyx entire, after flowering closed with a lid; tube of the corolla elongated.

Named from *scutella*, a small vessel, on account of the form of the calyx. This well-known genus has a few species appropriate to the greenhouse, as *S. cordifolia*, with scarlet flowers, from Mexico; *Japonica*, blue, from Japan; and *splendens*, scarlet-flowered, from Chili; *incarnata* is from Quito, and is a desirable greenhouse plant, as the corolla is a deep purplish rose-colour, and the leaves of a brilliant green; several of these species bear planting out in the summer, and they make very pretty beds if the entire space be devoted to them. *S. Ventenatii* is a very splendid species, only introduced in 1845; it is now a greenhouse plant, but will probably also do for bedding out, and as the corolla is a deep but bright scarlet, it will make a splendid show. *S. macrantha* is another beautiful species, from China, which, though often grown in the greenhouse from its beauty, the corolla being large and of a rich purple, is also hardy enough to bear planting out in summer, and makes quite a splendid bed. Soil, rich loam, and leaf-mould.

PROSTANTHERA.

Gen. Char. (*Didynamia Gymnospermia.*) Calyx two-lipped, in fruit closed; tube striated, lips undivided, blunt; corolla ga-

ping, with a half bifid helmet; middle segments of lower lip large, two-lobed; anthers spurred beneath.

Named in allusion to the spurs of the anthers. These are Australian shrubs, of which *violacea*, with blue, and *lasianthos*, with white flowers, are worthy of a place in the greenhouse; there are however other species, as *cærulea* and *rotundifolia*, with blue, *incisa*, *denticulata*, *linearis*, and *saxicola* with white, and *rhombea* with red flowers.

LEONOTIS. (Lion's-ear.)

Gen. Char. (*Didynamia Gymnospermia.*) Calyx tubular, with ten raised ribs, and eight or ten teeth; corolla gaping, helmet elongated, and the lower lip small and withering, with the middle segment scarcely larger than the others.

Named from the Greek for *lion* and *ear*. This is a genus of Cape plants, with rich orange-coloured flowers; the species for the greenhouse are *Leonurus*, *intermedia*, and *ovata*. They require a very airy greenhouse, or their leaves are apt to turn yellow and fall off. Cuttings, when rooted, should be potted in light, rich loam, and repotted as they increase in size.

VERBENACEÆ.

Exogens, with irregular, unsymmetrical flowers, Calyx tubular, inferior. Corolla monopetalous, below the ovary, tubular, generally with an irregular limb, falling off. Stamens usually four, two long and two short, occasionally only two. Leaves simple or compound.—Trees or shrubs in the tropics, herbaceous plants in the more temperate countries; properties slightly aromatic.

ALOYSIA. (Lemon-scented Verbena.)

Gen. Char. (*Didynamia Angiospermia.*) Calyx deeply four-cleft; corolla tubular, four-lobed; stamens four, perfect; stigma notched at the end; seeds two.

This genus is named after her Majesty Maria Louisa, Queen of Spain, by Paulo, a Spanish botanist. *A. citrodora,* formerly known as *Verbena triphylla,* is the sweet-scented plant so often introduced into the greenhouse, though in many localities it will now bear the open air; its lemon-scented leaves grow three together, and the flowers are small, of a pale purple, making very little show; it is a native of Chili, introduced in 1784, and should have a soil of sandy loam and leaf-mould, and be increased by cuttings. Though it will bear the open air in summer, the scent is much finer when it is taken in at night, and the leaves also

remain a better colour, and look more flourishing: as they are more attractive than the flower in this plant, particular attention should be paid to their state. Those plants which are forced, in order to make them produce their leaves very early in the season for the sake of their sweet scent, are by this means made very tender, and will shed them if exposed to a cold air, or even if the regular watering be neglected; they only require a little, but that every day.

LANTANA.

Gen. Char. (*Didynamia Angiospermia.*) Flowers in heads; calyx obsoletely four-toothed; limb of corolla four-cleft, with an open orifice; stigma hooked backwards.

An old name for the *Viburnum*, which this genus somewhat resembles. This is a genus of sweet-smelling plants, grown in the stove in this country, but a few may be introduced into the greenhouse, when they show flower: as *mollis*, from Mexico, with soft leaves and rose-coloured flowers; it has several varieties, as *lutea*, with rich orange flowers, changing to pinkish-purple; *mutabilis*, of a rich rose-colour, and pale yellow in the centre; and *violacea*, the flowers of which are pale yellow, and become a rose-violet.

MYOPORACEÆ.

Exogens, with flowers axillary. The calyx five-parted, not falling off. Corolla monopetalous, nearly equal or two-lipped. Stamens four, didymous, with sometimes the rudiment of a fifth. Ovary two or four-celled. Stigma scarcely divided. Leaves simple, sometimes thickly covered with transparent dots.—Shrubs, principally from Australia.

MYOPORUM.

Gen. Char. (*Didynamia Angiospermia.*) Calyx five-parted; corolla bell-shaped, with a spreading, nearly equal, five-parted limb; drupe one or two-seeded.

Named from the Greek for *to shut up* and *a pore,* from the spots on the leaves being like closed pores. Australian evergreen shrubs, most of them having white flowers: as *parviflorum, montanum, ellipticum, acuminatum, crassifolium,* and *viscosum; debile* and *diffusum* have blue flowers.

SELAGINACEÆ.

Exogens, with flowers sessile, spiked, and with large bracts. Calyx spathaceous or tubular, not falling off, with a definite number of teeth or divisions, rarely consisting of two divisions. Corolla tubular, more or less irregular, with five lobes, imbri-

cated in bud. Stamens four, arising from the top of the tube of the corolla. Ovary superior. Style one, filiform. Stigma nearly capitate. Leaves alternate, generally sessile, toothed or entire, usually in clusters.—Herbaceous plants, or small branched shrubs; principally natives of the Cape and the shores of the Mediterranean.

SELAGO.

Gen. Char. (*Didynamia Angiospermia.*) Calyx five-cleft; tube of corolla filiform, limb nearly equal; capsule simple or two-lobed, each lobe with a seed.

Name of doubtful origin. A genus of pretty Cape shrubs with beautiful spikes of flowers: as *Gillii,* with rose-coloured flowers; *micrantha* and *hispida,* with yellow; *cinerea, fulvo-maculata,* and *distans,* with violet; *divaricata, corymbosa,* and many others, with white flowers in spikes: they are all hardy greenhouse plants, and require little care. One species, *ovata,* is now called *Microdon ovatum,* which genus includes also *lucidum,* both with white flowers, from the Cape, and suitable for the greenhouse.

GESNERIACEÆ.

Exogens, with showy flowers in racemes or panicles, rarely

solitary. Calyx half-adherent, five-parted. Corolla monopetalous, tubular, more or less irregular, five-lobed. Stamens two or four, didymous; anthers often cohering. Fruit capsular or succulent, superior, one-celled. Leaves rough, generally opposite or whorled.—Fleshy herbs or shrubs, natives of hot humid climates, and of great beauty.

GESNERIA.

Gen. Char. (*Didynamia Angiospermia.*) Calyx five-cleft; corolla incurved and recurved; capsule two-celled; seeds several.

Named after Gesner, of Zurich, a famous botanist. Beautiful plants from Mexico and South America, most of them requiring the stove, as *Cooperii, faucialis, polyantha, zebrina,* etc., the flowers of which are either scarlet or crimson; *mollis* has them of a brown-orange hue; *Douglasii* has them spotted, and there are many others very beautiful; these may occasionally be placed in the greenhouse, but they will not live there. The species *reflexa* with dazzling scarlet, and *longifolia* with crimson flowers, will thrive in the cooler air of the greenhouse; also *Gardneri,* with purplish-red flowers; *faucialis* is said also to bear the atmosphere of the greenhouse without injury, as well as *bulbosa,* with scarlet flowers.

These beautiful plants may be increased by dividing the

tuberous root, and should be potted in rich light earth, and the pots be well drained.

GLOXINIA.

Gen. Char. (*Didynamia Angiospermia.*) Calyx five-leaved; corolla bell-shaped, with an oblique limb; filaments with the rudiment of a fifth, inserted upon the receptacle.

Named in memory of Dr. Gloxin, a botanist. Very beautiful herbaceous plants, natives of Brazil, and requiring stove heat; but some will, for a time, bear the cooler air of the conservatory or greenhouse, as *G. maculata* and *speciosa;* the former has purple flowers and a spotted stalk, the latter blue, with varieties both red and white-flowered; they both require heat to bring them into a state for blooming well, and after that they will bear the air of the greenhouse, and make a show there during the time of flowering. Early in the spring the old root should be taken out of the pot, and the offsets taken off and planted singly in small, well-drained pots of rich light loam; then they should be plunged in a hotbed, which will soon bring them on; as they advance in growth larger pots must be used, and a good supply of water: about July they will be in flower,

and are fit for the greenhouse. When the flowering season is over, they may be placed in the stove or very warm part of the greenhouse, and very little water must then be given them. The species *speciosa* is the best adapted to the greenhouse, especially if the pots are kept dry in the winter and extra heat be given in spring, but of course the flowers are still finer in the hothouse.

ACHIMENES.

Gen. Char. (*Didynamia Angiospermia.*) Calyx five-cleft; corolla with a very narrow tube, incurved, and five-lobed.

A beautiful genus of plants, thriving the best in the stove, and being considered properly as stove-plants, like the two last-mentioned genera, but they can be introduced for a time into the greenhouse. *A. coccinea* has splendid scarlet flowers, it is a native of Jamaica; *rosea* is the rosy-flowered; *hirsuta* is of the same hue; *picta,* called the Painted-leaved Achimenes, has orange-crimson flowers; *multiflora,* lilac, and *longiflora,* blue-flowers. They are all natives of South America.

BIGNONIACEÆ.

Exogens, with the calyx divided or entire. Corolla monopetalous, usually irregular, four or five-lobed. Stamens five, unequal, one always sterile, sometimes three. Ovary seated on a disc, two-celled. Leaves opposite, very rarely alternate, compound or simple.—Trees, shrubs, or occasionally herbs, often twining or climbing; natives of the tropics and America; flowers very attractive.

TECOMA.

Gen. Char. (*Didynamia Angiospermia.*) Calyx five-cleft, cup-shaped; corolla bell-shaped, five-cleft, ventricose beneath; pod two-celled.

A genus of plants some of which are climbers, and adapted to the greenhouse; others require greater heat. *T. Australis,* with blush-coloured flowers, *jasminoides,* of the same hue, and *diversifolia,* with yellow blossoms, are Australian plants; *Capensis,* with orange flowers, is a Cape plant; *grandiflora,* with large orange flowers, is Chinese; those of *radicans* are also orange-coloured, and the plant is hardy enough for the open air in a sheltered place; it is a native of North America, and was introduced more than two hundred years ago. They prefer a good rich loam.

AMPHICOMA.

Gen. Char. (*Didynamia Angiospermia.*) Corolla monopetalous; stamens five, unequal, one sterile; ovary seated on a disc, two-celled.

A. arguta, a Himalayan plant, with pale flesh-coloured flowers, appearing in June and lasting till September, is occasionally introduced into the greenhouse.

BIGNONIA. (Trumpet-flower.)

Gen. Char. (*Didynamia Angiospermia.*) Calyx five-cleft, cup-shaped; corolla campanulate, five-cleft, ventricose beneath; pod two-celled; seeds with membranous wings.

Named after the Abbé Bignon, the friend of Tournefort, the botanist. A genus of beautiful climbing plants, many living only in the hothouse; a few are suitable for the greenhouse, as *B. capreolata,* which has handsome yellowish-purple flowers, and looks well trained either in the house or in a warm situation out-of-doors: it is a North American species; *Cherere* has orange flowers, and is from Guiana; *grandiflora* has yellow, and *speciosa* lilac blossoms, both of which are very beautiful; *radicans* has orange flowers, and

is sufficiently hardy to live out-of-doors, but must be sheltered by a wall in a warm situation. These plants are increased by cuttings or layers. The soil, peat and loam.

ECCREMOCARPUS.

Gen. Char. (*Didynamia Angiospermia.*) Corolla tube-like and monopetalous, five-lobed; leaves compound.

Although *Eccremocarpus scaber* is sufficiently hardy to be planted out in summer, and in sheltered situations will bear the root to remain in the ground if well covered with ashes, it is so beautiful a climbing plant for the greenhouse, that it may be introduced with advantage, as its tubular, orange-scarlet flowers are very beautiful, and the stem climbs to a great height. The seeds require heat to raise them, and the young plants will flower the first season, but better when older; cuttings may be taken in August, and planted under a hand-glass in a shady border, but these require to be housed for the winter. This plant is sometimes called *Calampelis scabra.* A light loamy soil is the most suitable for these plants.

ACANTHACEÆ.

Exogens, having flowers with bracts, sometimes large and leafy. Calyx four or five-parted, or in many pieces. Corolla monopetalous, below the ovary, bearing the stamens, mostly irregular; the limb gaping, or one or two-lipped. Stamens mostly two, sometimes four. Leaves opposite, rarely in fours, sometimes sinuated or lobed.—Herbaceous plants or shrubs; natives chiefly of the tropics.

THUNBERGIA.

Gen. Char. (*Didynamia Angiospermia.*) Calyx double, outer two-leaved, inner about twelve-toothed; corolla bell-shaped; capsule beaked, two-celled.

Named in honour of Dr. Thunberg, a botanist of Upsal. This is a genus of handsome climbing plants, principally requiring the stove, as *T. coccinea, Dodsii, grandiflora,* etc. One species, *T. Capensis,* with straw-coloured flowers, is sufficiently hardy to flourish in the greenhouse, where it is handsome as a climber. *T. alata,* though a native of the East Indies, and generally treated as a stove-plant, will also flourish in the greenhouse, at least in the summer, when it will blossom freely; it should be trained to a wire frame, about six feet high, formed of four uprights fitted into the pot, and wire spirally coiled round; the plant is then well

supported, and the beautiful flowers, of a buff colour, with a black eye, are displayed to the best advantage.

They are increased by cuttings, which should be inserted in sand and loam, and plunged in the hotbed frame, where they strike in two or three weeks if kept moist.

SCROPHULARIACEÆ.

Exogens, with the flowers having the calyx inferior, not falling off; the divisions four or five, often unequal, the upper being the largest. Corolla monopetalous; tube short or long; limb flat or erect, nearly equally divided or bilabiate; the upper of the four stamens altogether deficient or sterile, very rarely fertile. Leaves opposite, whorled or alternate.—Herbs and undershrubs; natives of all parts of the world; properties acrid, bitter, and poisonous.

CALCEOLARIA.

Gen. Char. (*Diandria Monogynia.*) Calyx four-cleft; corolla irregular, and inflated; stamens two; ovary two-celled.

Named from *calceolus*, a slipper, from the shape of the flower. This genus contains species which are great favourites in the garden as bedding plants, but requiring the shelter of the frame in winter; a few may be kept also in

the greenhouse, where they make a gay appearance, especially the species *corymbosa*, with its fine heads of yellow flowers; this kind has also several varieties, some with white flowers, others orange, etc. *C. purpurea* has a large spreading panicle of blossoms, of various shades of purple, and dark green leaves, it has a variety called *elegans*. *C. crenatifolia* has yellow blossoms, with brown spots; it forms a very striking object in the greenhouse, grows a foot or more high, and flowers very profusely. *C. integrifolia* is a shrubby species, with yellow flowers, with varieties called *angustifolia* and *viscosissima;* the latter is covered all over with viscid hairs, and produces a profusion of golden-yellow flowers all the summer long. *C. Herbertiana* has yellow flowers, streaked with orange; *Hopeana* and *Morrisoni* have also yellow, as well as *pendula, polyantha, rugosa, pinnata*, etc. The following are striped, or spotted: *formosa, Gelliana, fulgida, Atkinsiana*, etc.

The fine varieties now produced from these plants are too numerous to mention here; they are easily obtained on applying to the cultivators. Some of the species have pure white flowers, others lemon-coloured, or golden yellow with a brown blotch in the centre; one creamy-white with a crimson blotch; some mottled or streaked, others deep

crimson or dark maroon, or bronzy-yellow, or rich brown shading off to orange at the sides; in short the varieties are very numerous, and very interesting.

Cuttings of the side shoots of these plants are generally taken in September; these must be potted in light sandy peat, watered, shaded when necessary, and placed in the frame on a slight hotbed. As winter approaches, the old plants must be brought in from the garden, potted, and placed with the young cuttings, and the usual care bestowed on them during severe weather: those confined to the greenhouse only, require the same management as geraniums with regard to heat, air, and moisture.

ALONZOA.

Gen. Char. (*Didynamia Angiospermia.*) Calyx five-parted; corolla subrotate, five-parted, the upper segment the largest; filaments smooth; capsule two-celled.

Named after Alonzo, a Spanish patron of science. This is a Peruvian and Chilian genus of plants. *A. incisifolia* (sometimes known as *Celsia urticifolia*) has been an inhabitant of our greenhouses more than fifty years, and has scarlet flowers, as well as *acutifolia, linearis,* and *caulialata;*

intermedia has orange flowers. *Celsia* is a genus very similar to *Alonzoa,* the chief distinction being that the filaments are bearded: the species *orientalis* is a hardy annual, with yellow flowers. *Arcturus, viscosa, Cretica,* and *lanceolata,* with yellow flowers, are greenhouse or half hardy plants.

NEMESIA.

Gen. Char. (*Didynamia Angiospermia.*) Calyx five-parted; corolla spurred, with a prominent palate; capsule compressed, truncate, opening lengthwise in the middle, two-celled, two-valved.

This genus greatly resembles *Antirrhinun,* and *Nemesia* was an old name for those plants. A few species are introduced into the greenhouse from the Cape, as *chamædryfolia* and *bicorne,* with whitish blue flowers, *linearis,* with brownish rose-coloured, and *frutescens* with yellow flowers; the best is *floribunda,* with light yellow flowers, an annual hardy enough to bear being placed in the garden.

MAURANDIA.

Gen. Char. (*Didynamia Angiospermia.*) Calyx five-parted; corolla bell-shaped, unequal; filaments callous at the base; capsules two, united.

Named after a Dr. Maurandy, of Carthagena. A Mexican genus of elegant greenhouse climbers. *M. Barclayana* has lovely blue or purple flowers, and there is a variety with white; *semperflorens* has rose-coloured flowers, and *antirrhiniflora* purple; these plants flower all the summer, if shifted into large pots and a rich soil, in May.

LOPHOSPERMUM.

Gen. Char. (*Didynamia Angiospermia.*) Calyx five-cleft; corolla also five-cleft, and of a long tubular form.

A genus of beautiful climbing plants, natives of Mexico. *L. Rhodochiton* (*Rhodochiton volubile*) has large drooping flowers, with a light purple or pinkish calyx of a five-cleft, open form, and a beautiful bell-shaped corolla, an inch and a half long, divided into five at the edge, of an intense purple, clothed with white glandular hairs. *L. erubescens* is red-flowered; *scandens* also red, having a variety with spotted flowers; *spectabilis* and *Hendersonii* are also handsome plants for the greenhouse, and they will also bear planting out.

MIMULUS. (Monkey-flower.)

Gen. Char. (*Didynamia Angiospermia.*) Calyx like a prism, and five-toothed; corolla gaping, with the upper lip folded back at the sides; stigma thick; capsule two-celled, many-seeded.

Named from the Greek for an *ape,* as the seeds resemble the face of a monkey. *M. moschatus,* the Musk plant, is often introduced into the greenhouse or room on account of its scent. It requires rather peculiar treatment, wanting a great deal of water, but not being able to bear much sun. In autumn it dies down, when the plant should be kept from frost and watered, and in the spring, if put into a warm place, it re-appears. It should have rich mould.

PENTSTEMON.

Gen. Char. (*Didynamia Angiospermia.*) Calyx five-leaved; corolla two-lipped, ventricose; fifth filament longer than the rest, and bearded at the upper end; capsule compressed, two-celled, two-valved, seeds numerous.

Named from the Greek for *five* and *stamen,* there being five stamens, though only four are fertile. *P. Gordonii* is a charming species for the greenhouse, but it will bear plant-

O. Jewitt. lith.

Vincent Brooks Imp.

Penstemon Gordoni.

ing out in the summer, as it is from the Rocky Mountains; the flowers are very numerous, large, and of a rich blue; the tube of the corolla funnel-shaped, ventricose above, the limb two-lipped, the upper cut into two short, erect lobes, lower into three, reflexed, deeper ones, of which the middle is the smallest; this plant should not have much water, and the root should be kept dry in the winter: it flowers in June. *P. cordifolius* is a native of California; it has bright scarlet flowers and copious foliage, and will bear putting out in the summer, but requires protection before the frosts appear; it looks remarkably well in the greenhouse, where it is easily kept up by cuttings. A rich, light loam suits them.

VERONICA.

Gen. Char. (*Diandria Monogynia.*) Flowers inferior; corolla monopetalous, irregular, four-cleft, flattish, the lowest segment the narrowest; capsule two-celled.

A name said to have been altered from *betonica,* a Celtic word for *botany.* *V. formosa,* a native of Van Diemen's Land, though now tolerably hardy, is very useful in the greenhouse, as it forms a small bush, and at the end of every little branch appears a raceme of bright but deep-blue flow-

ers, which last a long time, as there are only a few open at once; it is easily increased by cuttings, and should be grown in light loam and leaf-mould. The species *Andersonii, kermesina, Lindleyana, rosea, salicifolia, speciosa,* with its varieties *coccinea, rosea,* and *variegata,* are all good ones for the greenhouse, as well as *undulata, perfoliata, gracilis, Brownii, formosa, nivea,* etc.: the two latter have white flowers, the others are mostly blue.

ANTHOCERCIS.

Gen. Char. (*Didynamia Angiospermia.*) Calyx five-cleft; corolla campanulate, regular; filaments four, with the rudiment of a fifth; stigma capitate; capsule two-celled, two-valved, and many-seeded.

Named from the Greek for *flower* and *ray,* from the ray-like appearance of the narrow divisions of the corolla. New Holland shrubs, requiring the greenhouse; the species are *littorea,* with yellow flowers; *viscosa, albicans,* and *ilicifolia,* with white flowers. *A. viscosa* is a handsome shrub, when in health, which has dark green leaves, but if it be over-watered, they lose their beauty, and the plant looks sickly. The soil should be light loam and leaf-mould.

MANULEA.

Gen. Char. (*Didynamia Angiospermia.*) Calyx five-parted; corolla funnel-shaped; limb five-parted, with awl-shaped segments, the four upper large and connected; capsule two-celled, and many-seeded.

The name is derived from *manus*, the hand, from the form of the divisions of the flower. Shrubs from the Cape, of which *M. oppositifolia*, with yellow flowers, *cærulea*, with blue, *rubra*, with red, and *viscosa*, with pink, are the most worthy of a place in the greenhouse. Soil, sandy peat and loam.

BROWALLIA.

Gen. Char. (*Didynamia Angiospermia.*) Calyx five-toothed; corolla closed by the prominent orifice; two of the anthers longer than the others; capsule one-celled.

Named after Browallius, a Bishop of Abo. A genus of annuals from Peru, of a tender nature, and therefore requiring the greenhouse. *B. demissa* and *elata* have bluish-white flowers; *grandiflora* has large light yellow flowers; *cordata* and *elongata* have blue; *Jamesonii* is a pretty shrub, with orange-coloured flowers.

DISANDRA.

Gen. Char. (*Heptandria Monogynia.*) Calyx generally seven-parted; corolla salver-shaped, seven-lobed; capsule two-celled, many-seeded.

Name of obscure meaning. *D. prostrata* is a little trailing plant introduced into the greenhouse from Madeira; it has kidney-shaped, notched leaves, and pretty bright yellow flowers, which make their appearance in May, and hang gracefully over the pot if it be placed in a convenient position to enable them to do so: a suspended basket suits it well. The soil should be light loam.

Subclass IV. EPIGYNOUS EXOGENS.

The stamens grow to the sides of either calyx or corolla, but the ovary is inferior, or nearly so, the tube of the calyx generally adhering to the ovary.

CAMPANULACEÆ.

Exogens, with a superior, usually five-lobed calyx, not falling off. Corolla monopetalous, inserted into the top of the calyx, usually five-lobed, and regular. Stamens inserted into the calyx alternately with the lobes of the corolla. Ovary inferior; style

simple, covered with collecting hairs. Leaves simple or deeply divided.—Herbaceous plants or undershrubs, yielding a milky acrid juice; principally natives of the Northern Hemisphere and the Cape.

CAMPANULA. (Bell-flower.)

Gen. Char. (*Pentandria Monogynia.*) Corolla bell-shaped, closed at the bottom with staminiferous valves; stigma from three to five-cleft; capsules inferior, opening by lateral pores.

From *campana*, a bell, on account of the form of the flower. This well-known genus has many species for the garden, which need not here be enumerated, except a few, which, though hardy, are from their beauty introduced into the greenhouse, particularly *C. pyramidalis*, that stately species, from Carniola, with its tall spikes of pale blue flowers, which continue in great beauty many months, and there is a beautiful white variety; these are generally trained to a fan-like frame. *C.* (*Platycodon*) *grandiflorum* is the great-flowered Campanula, from Siberia. *C. coronata* is particularly beautiful, having white bells, with the calyx green tipped with white. *C. fragilis, aurea, garganica, Vidalii,* and *Barrlieri* are lovely species, and require the greenhouse shelter entirely, as well as *saxatilis, mollis, peregrina, spathulata,* and *Ottomana*. These plants require a good garden soil, and the pots changed as the roots increase in size.

ROELLA.

Gen. Char. (*Pentandria Monogynia.*) Flowers monopetalous; corolla funnel-shaped, closed at the bottom with staminiferous valves; stigma two-cleft; capsule cylindrical, inferior.

Named after Roelle, of Amsterdam. *R. ciliata* is a very pretty evergreen shrub, with blue and white flowers, which is rather a favourite for the greenhouse; the flowers are large, sessile, and the leaves very narrow, ciliated, and upright; this is quite the best species. The soil should be peat, and light loam.

LOBELIACEÆ.

Exogens, with the calyx superior, five-lobed. Corolla monopetalous, irregular, five-lobed or deeply five-cleft, inserted in the calyx. Stamens five, inserted in the calyx alternately with the lobes of the corolla; anthers cohering. Leaves alternate.—Herbaceous plants or shrubs, with milky juice; natives principally of the Tropics; properties dangerous from the acrid milk.

LOBELIA.

Gen. Char. (*Pentandria Monogynia.*) Corolla with the tube split on one side, the limb two-lipped, five-parted; stigma two-lobed, sometimes entire; capsule two or three-celled, two-valved at the end.

Named after Mr. Lobel, a French botanist. This beautiful genus is well known by the garden species, and some are very ornamental and showy in the greenhouse: as *Tupa, linearis, setacea, commutata, simplex, bellidifolia, tomentosa,* etc. etc., natives of the Cape; *alata, gracilis,* and others, from New South Wales; *ignea,* from Chili; *Zeylanica,* from Ceylon, and many others: the prevailing colours are blue and purple, a few red. A new genus, called *Tupa,* has been formed of some species, the flowers of which are bright and handsome colours. *T. purpurea* is purple, also *polyphylla* and *decurrens; Feuillei, Cavanillesiana, blanda,* and *persicifolia* are red or scarlet; *salicifolia* is orange; *arguta,* yellow; *racemosa,* green, and *Bridgesii,* pink-flowered. The species *Feuillei* is a deadly poison, and in South America is called Tupa poison, as the milk is extremely acrid. If it can be grown without danger, it is a handsome plant, with many broad grey leaves, and a raceme of rich reddish-purple flowers: the plant is often six or eight feet high, and in a very warm and sheltered place will bear the open air. The perennial species should have a rich moist soil, and be kept dry and cool during winter. They are increased by cuttings.

GOODENIACEÆ.

Exogens, with the flowers distinct, never in heads. Calyx usually superior, rarely inferior, equal or unequal, in from three to five divisions. Corolla always more or less superior, monopetalous, more or less irregular, withering; its tube split at the back, and sometimes capable of being separated into five pieces; its limb five-parted, the edges of the segments being thinner than the middle, and folded inwards in bud. Stamens five, distinct. Ovary one or two-celled. Style one, simple, very rarely divided. Leaves scattered, often lobed.—Herbaceous plants, rarely shrubs; natives principally of Australia.

LESCHENAULTIA.

Gen. Char. (*Pentandria Monogynia.*) Calyx in five linear, subulate lobes; corolla formed of a long tube, with the limb rather two-lipped, and the lobes serrated.

New Holland plants, introduced into the greenhouse, as they are ornamental; *L. formosa* is a handsome plant with numerous narrow leaves, and flowers of a scarlet hue; *oblata,* orange; *glauca,* reddish-yellow; *biloba,* blue; *laricina,* violet; and there are besides, *arcuata, Baxterii,* and *splendens. L. arcuata,* from the Swan River, is a curious plant with innumerable branchlets, almost every one of which is terminated by a large yellowish flower mixed with red:

O. Jewitt lith.

Vincent Brooks Imp.

Leschenaultia arcuata.

the tube is short, the limb two-lipped, segments five, three of which are spreading, large, and of a sulphur-yellow, two are smaller, closing over the stamens and are reddish-purple; the leaves are very small and narrow. It is an interesting greenhouse plant.

SCÆVOLA.

Gen. Char. (*Pentandria Monogynia.*) Corolla monopetalous, with the tube divided lengthwise; limb five-cleft, and lateral; drupe inferior, one-seeded; nectary two-celled.

The word means *the left hand,* as the flowers look as if they were defective of half the corolla. The stove species of this genus are natives of the East and West Indies; those adapted to the greenhouse are from New Holland, as *crassifolia, cuneiformis, microcarpa, suaveolens* (the sweet-scented), *hispida, calliptera, multiflora,* etc., with blue or lilac flowers.

EUTHALES.

Gen. Char. (*Pentandria Monogynia.*) Calyx tubular, five-cleft, equal; corolla split at the end, with a two-lipped limb; anthers distinct; style undivided; stigma two-lipped; capsule four-valved, two-celled at base.

The name means *to push* or *sprout well*. *E. macrophylla* is a New Holland plant with large leaves, and brown and yellow flowers; it is showy in the greenhouse. Soil, peat and loam.

GOODENIA.

Gen. Char. (*Pentandria Monogynia.*) Corolla labiate, five-cleft, waved, longitudinally split, pushing forth the stamens; anthers linear; stigma pitcher-shaped, ciliated.

Named after Dr. Goodenough, a lover of natural history. Small New Holland shrubs, generally with yellow flowers, except *rigida, incana,* etc., which are blue; the others, *ovata, paniculata, gracilis,* and *grandiflora,* flower from May to August or October. Soil, peat, loam, and sand.

STYLIDIEÆ.

Exogens, with flowers in spikes, racemes, corymbs, or solitary. Calyx adherent, with from two to six divisions, two-lipped or regular, not falling off. Corolla monopetalous; its limb irregular, with from five to six divisions. Stamens two; filaments joined with the style into a longitudinal column. Anthers twin-like,

sometimes simple, lying over the stigma. Leaves entire, their margins naked or ciliated.—Herbaceous plants; natives of swamps in New Holland.

STYLIDIUM.

Gen. Char. (*Gynandria Diandria.*) Calyx two-lipped; corolla irregular, five-cleft, the fifth segment dissimilar; column reclinate, with a double bend; anthers with two spreading lobes; capsule two-celled.

The name is derived from the Greek for *column*. A genus of pretty little New Holland plants suitable to the greenhouse; they are singular from the column being bent, and irritable when touched. The species *hirsutum, lineare, graminifolium, pilosum, Armeria, scandens, glandulosum, ciliatum,* have been introduced, with many others, into cultivation here. *S. saxifragoides* is exceedingly pretty, with dense tufts of narrow yellow-green leaves, tinged with purple, lying close to the ground; from these proceeds the flower-stalk, bearing flowers the calyx of which has oblong red lobes, and the corolla large, and of a creamy yellow; the style is much bent and is red. *S. mucronifolium* is from the Swan River, and the flower is of a much brighter yellow than the last, and has orange marks round the mouth; it is particularly pretty. Besides these there are *adnatum, androsacea, bel-*

lidifolia, fasciculatum, gramineum, Brunonianum, and *recurvum.* These plants require to be kept from frost and damp in the winter, and a light peat soil suits them; they are increased by seeds and cuttings.

ASTERACEÆ.

Exogens, with flowers collected in dense heads upon a common receptacle, surrounded by an involucre. The florets have the calyx superior, closely adhering to the ovary; the limb either wanting, or divided into bristles, hairs, or feathers, called pappus. Corolla monopetalous, superior, either strap or funnel-shaped, and four or five-toothed. Stamens equal in number to the teeth; the anthers cohering in a cylinder. Leaves simple, or much divided.—Herbaceous plants or shrubs; natives of all parts of the world; properties tonic, bitter and aromatic.

CHRYSOCOMA. (Golden Locks.)

Gen. Char. (*Syngenesia Polygamia Æqualis.*) Receptacle naked; pappus simple; involucre hemispherical, imbricated; style scarcely longer than the florets; all the florets have stamens and pistils.

Named from the Greek for *gold* and *hair,* from the yellow colour of the flowers. These are Cape plants, with yellow

compound flowers; the species are *biflora, comaurea, cernua, ciliata,* and *nivea.* Light sandy soil is the best.

CHRYSANTHEMUM.

Gen. Char. (*Syngenesia P. Superflua.*) Florets of the disc with both stamens and pistils,—of the ray, pistils only; involucre hemispherical, imbricated, with scales, the borders of which are membranous; receptacle naked; pappus none.

Named from the Greek for *gold* and *flower,* from many of the blossoms being yellow. Besides the plants of this genus grown in the garden, a few should be introduced into the greenhouse; *C. Sinense,* the well-known Chinese Chrysanthemum, cultivated under shelter, continues in flower long after those in the garden are over; its varieties are so numerous in colour and size that the house may be made gay with these flowers alone if due attention be paid to their cultivation. There are two distinct kinds: those growing tall, and producing large flowers, and others, called Pompones, forming a dwarf and more compact plant, and having numerous but smaller blossoms.

HELICHRYSUM. (Yellow Everlasting.)

Gen. Char. (*Syngenesia P. Superflua.*) Florets of the disc having both stamens and pistils,—of the ray, pistils only; receptacle naked; pappus hairy or feathery; involucre imbricated, radiated; ray coloured.

Named from the *sun* and *gold*, from the colour of the flowers. *H. bracteatum* and *arenarium*, the Yellow Everlastings, grow in our gardens, and there are others equally hardy; the following, principally from the Cape, require the shelter of the greenhouse:—*H. ericæfolium, paniculatum, grandiflorum, stellatum, argenteum*, and many others, have white flowers; *fulgidum, odoratissimum, rutilans*, and many more, have yellow flowers; these are all "Everlastings." Some also have red flowers, and as they often remain on the plant six months without decaying, they are a valuable addition to a collection. The soil should be sandy.

GNAPHALIUM. (Common Everlasting.)

Gen. Char. (*Syngenesia P. Superflua.*) Florets of the disc with both stamens and pistils,—of the ray, pistils only; receptacle naked; pappus hairy or feathery; involucre imbricated, marginal scales round, membranous and dry, coloured.

An ancient name. These plants have everlasting flowers; many of them are introduced into the garden, others require the shelter of the greenhouse, as *G. purpureum*, with purple flowers, from South America; *lasiocaulon*, with white flowers and woolly stalks, from the Cape; *acuminatum*, also white-flowered, from Australia; and *involucratum*, with green flowers, from New Zealand. *Schraderi, citrinum, pulverulum*, and *spicatum* are rather more hardy than the above species, and will bear putting out in the summer.

CINERARIA.

Gen. Char. (*Syngenesia P. Superflua.*) Florets of the disc having both stamens and pistils,—of the ray, pistils only; receptacle naked; pappus simple; involucre simple, many-leaved, equal.

The name is derived from *cineres*, ashes, from the colour of the soft down on the leaves. This genus consists of Cape plants principally, of a half-shrubby nature, and some of them tolerably hardy, that is, they bear the open air in the summer, but require the greenhouse in the winter. A fine collection of these plants is very gay, from the beauty and star-like character of their flowers, which are remarkably

brilliant, even by candle-light or in the foggy atmosphere of London, so that they are a very desirable plant for ornamenting rooms. They flourish very well in the confined air of houses, if attention be paid to watering, but if neglected the bloom droops, and curls up; the earth should never be allowed to be dry, but it must not be saturated. *C. discolor, populifolia, lanata,* etc., are handsome species, but so many varieties have been produced from the originals, that these seem to be almost lost amongst the host of brighter and newer beauties. Cultivators give these varieties very fanciful names, which it is scarcely worth while to enumerate, as lists are so easily obtained from the principal gardeners; the following is a description of some of the most striking:—white and lavender; blush-white with purple disc; clear white, edged with crimson; white and bright carmine, with carmine centre; violet-purple with yellow disc; clear deep blue; brilliant crimson; white and bright rose, with a light centre; very dark blue, with white centre, and so on, for the varieties are endless, and all very beautiful; the flowers grow in flat corymbs, and show to great advantage. *C. maritima,* or, as it is sometimes called, *Senecio cinerarius,* is beautiful from its almost white stems and leaves, which are densely clothed with soft white hairs; the flowers are

yellow, and it is a native of the South of Europe, so that it is tolerably hardy here, but looks remarkably well in the greenhouse. *C.* (*Agathæa cœlestis*) *amelloides* is sometimes called the Cape Aster; it is a favourite flower in the greenhouse, with bright blue flowers, appearing in February and continuing for some months. The plants appear to flourish the best when they are kept in a cold frame, if there is no frost, till they show flower, and then removed to the greenhouse. Cuttings from them root readily.

ACROLINIUM.

Gen. Char. (*Syngenesia Æqualis.*) Involucre imbricated; receptacle conical; corollas tubular, five-toothed; pappus lasting.

This is a genus of Swan River plants, quite worthy of introduction into the greenhouse. *A. roseum* is a very beautiful annual, the flower being often two inches across, and rose-coloured, with a bright yellow centre, the involucre brownish or olive-green, tinged with dark red. It flowers very freely, and proves to be half-hardy.

AGERATUM.

Gen. Char. (*Syngenesia Æqualis.*) Receptacle naked; pappus with five somewhat awned, chaffy scales; involucre oblong, in a double row; corollas four or five-parted.

The name means *primitive* and *old-age,* from the colour being permanent. Of this genus there are hardy species for the garden, and for the greenhouse the following: *A. cœlestinum,* which is now frequently called *Cœlestina suffruticosa,* is a native of South America, its flowers are blue; there are also the species *Mexicanum* and *variegatum:* these species are extremely pretty, flowering from June till late in the autumn. They require a light soil.

HUMEA.

Gen. Char. (*Syngenesia Æqualis.*) Receptacle minute and glandular; pappus none; involucre loosely imbricated, membranous; florets about three, tubular; anthers awned.

Named after Sir A. Hume, a promoter of botanical study. *H. elegans* is worth introducing into the greenhouse, as it has large spreading panicles of brilliant red flowers, which appear in June, and continue till October: it is a native of New South Wales, and is raised from seed.

ASTELMA.

Gen. Char. (*Syngenesia Superflua.*) Receptacle naked; pappus feathery, sessile; rays joined at the base; involucre imbricated with chaffy scales, the interiors of which are converging.

The word is from the Greek, meaning *without a crown,* in allusion to the construction of the fruit. This is a genus of shrubs from the Cape, bearing everlasting flowers. *A. eximium* is called the Giant Astelma; it grows three feet high, with the leaves sessile, close, erect, and downy; the corymb of flowers is also sessile, and of a crimson colour; *fragrans* and *canescens* have rose-coloured flowers; *milleflorum, imbricatum, speciosissimum,* and others, have white flowers; *crassifolium* and *Stœhelina* have yellow flowers. They should have sandy peat soil, and careful watering.

RELHANIA.

Gen. Char. (*Syngenesia Superflua.*) Receptacle paleaceous; pappus membranous, cylindrical, short; involucre imbricated, membranous; rays numerous.

Named after Mr. Relhan, an English botanist. Cape evergreen shrubs, which are sometimes introduced into the greenhouse, where they show their yellow flowers in May:

the species are *squarrosa, pedunculata,* and *paleacea.* They do not seem to require any particular treatment, beyond a light peat and loam soil.

TRIPTILION.

Gen. Char. (*Syngenesia Æqualis.*) Involucre imbricated, the exterior scales somewhat squarrose; florets bilabiate, the upper lip three-toothed, lower entire and rolled back; receptacle shaggy; pappus with three feathers.

Named from the Greek for *three* and *feather,* on account of the three-feathered pappus: a pretty genus from Peru, consisting of the species *spinosum* and *cordifolium;* the flowers are very pretty, of a blue colour, and continue some months in great beauty, as they are somewhat "everlasting" in character. The plants must not be kept damp.

RHODANTHE.

Gen. Char. (*Syngenesia Æqualis.*) Florets of the disc and ray having both stamens and pistils; involucre white and silvery.

Named from the Greek for *rose* and *flower.* *R. Manglesii* is a beautiful annual from the Swan River, producing

exquisitely delicate rose-coloured everlasting flowers, which are particularly adapted for making winter bouquets, as they preserve their colour and form for some time. If sown in a hotbed and put out in May, they are hardy enough to bear the outer air; but they look so remarkably well in the greenhouse that a few pots should always be retained, as there, free from dashing rains and burning suns, they produce their delicately beautiful flowers to perfection. If the young plants are shifted into larger and larger pots, and the buds repeatedly pinched off, they will become large plants, and yield an immense number of flowers through the autumn. The soil should be turfy peat, and sand.

APHELEXIS.

Gen. Char. (*Syngenesia Superflua.*) Receptacle chaffy; involucre imbricated, radiated, with a coloured ray,

Aphelexis purpurea, sesamoides, humilis, and *fasciculata* are deserving of a place amongst the composite flowering shrubs: they have purple or red flowers, and small leaves closely pressed to the stem. They are all natives of the Cape.

ONAGRACEÆ.

Exogens, with flowers having either no petals, or generally only four, inserted into the throat of the calyx; the latter being tubular, and four-lobed. Stamens four or eight, inserted into the calyx. Ovary two or four-celled, generally crowned by a disc. Leaves simple, entire or toothed.—Herbaceous plants or shrubs; chiefly natives of the temperate regions.

FUCHSIA.

Gen. Char. (*Octandria Monogynia.*) Calyx funnel-shaped, coloured, falling off; petals four, in the throat of the calyx, alternate with its segments; nectary an eight-furrowed gland; stigma capitate; berry oblong, obtuse, four-cornered, four-celled, many-seeded.

This very interesting genus, named after Fuchs, a German botanist, has been known in this country about eighty years; the first introduced was from Chili, the *F. coccinea;* this and several others have now become hardy, and very many varieties have been raised by the care and attention of cultivators, the flowers differing more or less from the original Chilian species, some having the tube and divisions of the calyx rose-coloured, with purple corolla, or even almost black; others with the calyx white, and the corolla purple

or violet, or deep rose, or even crimson; in short, the combination of these colours is almost endless: the form of some is globose, of others very long and elegant; some have the divisions of the calyx reflexed, others pendent. *F. macrostemma* has scarlet flowers, and many varieties have been raised from it; *corymbiflora* is a beautiful species, having long purplish-crimson flowers in large bunches; *splendens* is another from the same country, Peru; *arborescens* is from Mexico, from which country we have also several others; *lycioides* has red flowers, and requires greenhouse protection in the winter, and should be grown in large pots to flower freely: it will also bear the open air in summer; *excorticata* has flowers of greenish-red; *globosa* (a variety) makes a great show in the house, from its abundant flowers, and, as they are of a bright red colour and of a globular or balloon shape, it is a beautiful plant; *microphylla* has its leaves and flowers very small, but it blooms very abundantly; *longiflora* is one of the most beautiful of the genus, the flower-stalks being several inches long, in addition to the long blossoms. *F. macrantha*, a most splendid species, and a native of the lofty mountains of Andimarca, in Peru, is quite a hardy greenhouse species, and will probably succeed also in the garden; the flowers are so numerous and long as quite to

conceal the stem of the plant: each flower is pendulous, the calyx being cylindrical, very long, of a fine rose-red colour, with the limb four-cleft; there is no corolla, and the stamens are not seen to protrude, the pistil alone being visible; the leaves are rather large, and entire, and the plant is a low, straggling shrub. *F. bacillaris*, a Mexican plant, is quite worthy of a place in the greenhouse; its branches are of a reddish colour, the flowers on very slender drooping stalks, several grouped together, the calyx deep red, tube cylindrical, petals deep rose-colour; this species is readily increased by cuttings, and thrives best if exposed to the outer air in summer, and kept dry in winter. Besides these there are *cordifolia*, *grandiflora*, *splendens*, *fulgens*, etc. etc. It is considered a good plan to take, in August, cuttings three inches long, under a joint, with a sharp knife, taking off some of the lower leaves; to plant them in fine sandy soil, watering freely, and placing the pots in a hotbed, or in a shady situation, putting hand-glasses over them when the leaves are dry; this latter treatment should be continued for about six weeks, when they will have struck root, and be ready for potting; these, with care during the winter, will make good plants in the spring. If tall plants are wanted, the shoots in the spring should be thinned out to three or four

O. Jewitt lith.

Vincent Brooks Imp.

Lopezia macrophylla.

of the strongest, or even one, taking off all the lateral shoots till the desired height is attained, and giving them rich soil and a cool greenhouse in winter; the pots should be very well drained.

LOPEZIA.

Gen. Char. (*Monandria Monogynia.*) Limb of the calyx four-parted, falling off; petals four, irregular; stamens two, one anther fertile, the other sterile and petal-like.

L. macrophylla is a small shrub, with leaves slightly hairy, but handsome; flowers large, bright red, having only the small, globose ovary, green; this is a native of Mexico, bearing the greenhouse here, and flowering in March. *L. racemosa, cordata, hirsuta,* and *lineata* have purple flowers, excepting the last, which has them more of a pink hue: these are all greenhouse annuals or perennials from Mexico; some species also from the same country are hardy.

MYRTACEÆ.

Exogens, the flowers of which have several petals. Calyx adhering, four or five-cleft, sometimes falling off like a cap in

consequence of the adhesion of the apex. Petals equal in number to the segments of the calyx. Stamens either twice as many as the petals or numerous; filaments either all distinct or in several parcels, curved inwards before flowering. Leaves entire, usually with transparent dots and a vein running parallel with the margin.—Trees or shrubs; natives of hot climates; properties fragrant and aromatic.

TRISTANIA.

Gen. Char. (*Polyadelphia Polyandria.*) Parcels of stamens five, opposite the petals, and scarcely longer; anthers incumbent; capsule three-celled, many-seeded.

Named from the Greek for *three* and *to stand,* from the flowers and leaves growing in threes. This is a genus of pretty evergreen shrubs with yellow myrtle-like flowers, except *T. albicans,* which has white. *T. neriifolia* is called the Oleander-leaved species, and is introduced into the greenhouse, as well as *persicæfolia, laurina, albens, macrophylla,* and *suaveolens,* the sweet-scented; they are natives of Australia.

BEAUFORTIA.

Gen. Char. (*Polyadelphia Polyandria.*) Parcels of stamens five, opposite the petals; anthers inserted by the base, bifid at the end,

with the lobes falling off; capsule three-celled, one-seeded, joined together at the base and included in the thickened tube of the calyx, which grows by its base to the branch.

Named after the Duchess of Beaufort. This is considered a beautiful genus of greenhouse shrubs, natives of Australia, and in this country growing freely and flowering well with common treatment. *B. decussata, sparsa,* and *splendens* have scarlet flowers; *Damperi,* pink; *purpurea* and *macrostemon,* purple. *Damperi,* named after the celebrated navigator, has numerous flowers in whorls at the extremity of the branches, the petals are small and not bright in colour, but the stamens and filaments are of a rosy hue and conspicuous; it yields a fruit the size of a pepper-corn and of a whitish hue; this species is a very pretty dwarf shrub for the greenhouse. These plants require a mixture of peat and loam, and cuttings prosper if placed in sand and covered with a glass: some of these plants are also known by the generic name of *Schizopleura.*

CALOTHAMNUS.

Gen. Char. (*Polyadelphia Icosandria.*) Parcels of stamens four or five, opposite the petals; anthers inserted by the base and

entire; capsule three-celled, many-seeded, joined together at the base and included in the thickened tube of the calyx, which grows by its base to the branch.

The meaning of the word is *beautiful* and *rod,* which name arises from the branches of these handsome Australian plants being covered with scarlet blossoms. They were introduced into our greenhouses about fifty years ago, by the species *quadrifida* and *villosa;* since then *clavata, gracilis,* and *Knightii* have been introduced from the same country.

MELALEUCA.

Gen. Char. (*Polyadelphia Polyandria.*) Parcels of stamens five, opposite the petals, long; anthers incumbent; capsules three-celled, many-seeded, joined together at the base and included in the thickened tube of the calyx, which grows to the branch.

The first-described species having black wood and white branches, the genus received its name from the Greek for *black* and *white.* These shrubs are often introduced into the greenhouse (in which about fifty species may be grown), for they are not only very ornamental, but are easily reared with common care and treatment. The following are some

of the species: *M. Leucadendron, minor, globifera, striata, styphelioides,* and many others, white-flowered; *viridiflora, diosmæfolia,* and others, green; *thymifolia, scabra, squamea, cuticularis,* etc., purple-flowered; *tetragona, decussata, gibbosa, erubescens,* lilac; *fulgens, hypericifolia,* scarlet; *elliptica,* crimson; *seriata, callistemonea,* rose-coloured; *trichophylla, radula,* etc., pink-flowered; *Frazerii* is a beautiful low shrub, with the flowers in a spike, the petals of which are white, with fine, delicate, but conspicuous rose-coloured stamens. From this short list it will be seen that there is a great variety of species to choose from, and one or two of these shrubs prove very ornamental; they require a mixed soil to make them flower well, and ripened cuttings will root in sand under a bell-glass.

EUCALYPTUS. (Gum-tree.)

Gen. Char. (*Icosandria Monogynia.*) Calyx truncate, covered with an entire lid, which falls off; no corolla; capsule four-celled, opening at the end, many-seeded.

Named from the Greek, in allusion to the lid-like covering of the calyx. Many species of this genus are lofty

trees in Australia, and if allowed to grow in high conservatories become very large plants, but as they flower freely when kept dwarf they are sometimes introduced into the greenhouse, and there are many interesting species to choose from, most of them with beautiful foliage and white flowers, with numerous stamens, which are much longer than the calyx; these flowers are rendered more conspicuous by being in corymbs or groups. The best species are *macrocar* and *coccifera*. In the conservatory or greenhouse they should have a soil composed of loam and peat.

LEPTOSPERMUM. (South Sea Myrtle.)

Gen. Char. (*Icosandria Monogynia.*) Calyx persistent at the base, five-cleft, half-superior; petals five, clawed, round, longer than the stamens; stigma capitate; capsule depressed, four or five-celled; seeds angular and slender.

Named from Greek words, in allusion to the extreme thinness of the seeds. The leaves of these shrubs are used as Tea in New South Wales and New Zealand, and are said to have an agreeable bitter flavour, and a pleasant smell. Some of the species are introduced into this country, and are pretty greenhouse shrubs, with white flowers. *L. sco-*

parium is called New Zealand Tea, and is the only species introduced from that country; the rest, from New South Wales, seem to be characterized by their leaves, as *sericeum*, the silky-leaved; *grandifolium*, the large-leaved; *pubescens*, the hoary, *lanigerum*, the woolly, *myrtifolium*, the myrtle, *porophyllum*, the dotted-leaved, etc. etc. *L. ambiguum* has pendulous branches, which, in June and July, are loaded with pale yellow flowers, making it particularly ornamental. *L. scoparium* is perhaps the most useful species to introduce, as it flowers early in the spring and continues long in blossom; a variety with larger flowers has its petals tinged with rose colour when fully exposed to the sun, though they will be white in the shade; it is said that in its native country, where there is an almost ever sunny sky, the flowers are of a deep rose-colour.

The soil should be loam and peat, and the shrubs may be propagated by cuttings as well as by seeds. *Stenospermum corifolium* and *Billotia flexuosa* and *marginata* were formerly considered as species of *Leptospermum;* they have white flowers, and are introduced into the greenhouse.

MYRTUS. (Myrtle.)

Gen. Char. (*Icosandria Monogynia.*) Calyx five-cleft; petals five; stamens many; style one; berry two or three-celled, many-seeded.

The name is derived from the Greek for *perfume*. The well-known *Myrtus communis* is often introduced into the greenhouse, although it is half-hardy, for the sake of its evergreen leaves; some species will only flourish in the stove, but the following may be introduced into a cooler atmosphere:—*M. bullata* is a New Zealand species, which becomes a shrub of some height: the leaves are curiously swollen between the veins, whence the specific name, as they look as if blistered, they are purplish underneath; the flowers are large, the calyx purple, the petals concave, ciliated, white, deeply tinged with red on the outer side, stamens very numerous, rising from a ring in the centre; this species is quite worthy of a place in a collection of plants, from the beauty of the flowers and the fragrance of the foliage when bruised. *M. tenuifolia* and *tomentosa* are also good species.

BÆCKEA.

Gen. Char. (*Decandria Monogynia.*) Calyx five-cleft; petals five; capsule three or four-celled, many-seeded, covered by the calyx.

Named after Beck, a physician to the King of Sweden. Myrtle-like plants of New South Wales, sometimes introduced into the greenhouse; there are fifteen or more species, all having white flowers; the best are *camphorata*, with camphor-scented leaves; *virgata, gracilis, pulchella, diosmæfolia, linifolia,* and *ramosissima.* There is also a species which is now called *Babingtonia camphorosma;* it has very pretty pinkish-white flowers. These plants grow freely in sandy loam and peat, and are tolerably hardy.

PSIDIUM. (Guava.)

Gen. Char. (*Icosandria Monogynia.*) Calyx five-cleft; petals five; berry soft, pulpy, many-seeded.

Psidium was one of the Greek names for the Pomegranate, *Punica Granatum,* a hardy tree. *P. Cattleianum,* a

native of Brazil, is sometimes introduced into the greenhouse; it has white, myrtle-like flowers and purple fruit, which has a pulp somewhat the flavour and consistence of strawberries. It grows readily in light and rich loam, and is increased by layers or cuttings.

METROSIDEROS.

Gen. Char. (*Icosandria Monogynia.*) Calyx five-cleft, half-superior; petals five; stamens very long, separate; stigma simple; capsule three or four-celled.

The word means *the heart of a tree* and *iron*, from the hardness of the wood. A genus of Myrtaceous plants, of which *M. florida*, with straw-coloured flowers, and *robusta* with crimson, are natives of New Zealand; *corifolia* has white flowers, and is a native of New South Wales, as well as *umbellata*, with red flowers; *capitata* has pink flowers, and is a native of the Cape. *M. tomentosa* is also extremely ornamental in the greenhouse, for the foliage is very beautiful, being shining dark green above, white with down underneath, and of a coriaceous texture; the brilliant scarlet blossoms are very abundant and conspicuous objects, they

are in terminal corymbs, which are white with down, petals yellow, and so minute that they are lost amidst the very long filaments, which are of a bright red, and present a very striking appearance: it grows luxuriantly in a cool greenhouse, and will even flower out of doors, but must be sheltered in the greenhouse in the winter; it is propagated by cuttings, and requires a light loam. *M. buxifolia* is another greenhouse species, with spreading, dark green, box-like leaves, and whitish-yellow flowers in small groups among the upper leaves; the numerous stamens, which have very long filaments and yellow anthers, give the flowers a very pretty appearance. *M. florida* is a very fine shrub, and when it succeeds in flowering well is very handsome, as its fine red blossoms, of which the stamens are the conspicuous part, form a round head at the end of the branches; the leaves are also very handsome, glossy, dark green above, and pale beneath; it is supposed that in the mild air of the west of England it might flourish unprotected, and in this way it may in time become a hardy shrub for our gardens, but at present it grows freely as a greenhouse shrub, and requires moisture. *M. floribunda* is now called *Angophora floribunda,* and is a very beautiful plant; it has deep-coloured crimson flowers, which, before they

open, look like little balls of crimson silk. Soil, loam, peat, and sand.

LOASACEÆ.

Exogens, with the flowers single and axillary. Calyx adherent, four or five-parted, not falling off, imbricated and spreading in bud. Petals five or ten, in two rows, often hooded. Stamens many, in several rows, arising from within the petals; filaments unequal, the outer ones often without anthers. Ovary inferior, one-celled. Leaves opposite or alternate, without stipules, usually more or less divided.—Natives of America.

LOASA.

Gen. Char. (*Polyadelphia Polyandria.*) Calyx five-leaved; petals five; nectary five-leaved; capsule partly inferior, one-celled, generally three-valved, many-seeded.

The meaning of the name is unknown. A genus of Chilian and Peruvian plants, some of which are hardy annuals; others may be introduced, for their beauty and climbing character, into the greenhouse, as *L. Herbertii, Pentlandica, lateritia*, etc.; these have orange flowers, and are often known under the generic title of *Caiophora*. *L. picta* has lately been introduced from the Andes, and is one

of the most lovely of plants; it is a tender annual, and the seeds should be sown in a frame, but in summer may be turned out; the leaves are a pale green; flowers large, drooping, petals reflexed, hooded, the colour bright yellow and white, nectaries white, beautifully spotted with red. *L. lateritia* is a remarkably pretty climbing plant, which looks well when allowed to run over a wire frame, its rather peculiar orange-coloured flower making it very ornamental; the leaves have a stinging property like the Nettle: the plant does not bear much water.

CACTACEÆ.

Exogens, with flowers usually lasting only a day and night; divisions of calyx numerous and not easily distinguished from the petals. Petals commonly numerous, arising from the orifice of the calyx, sometimes irregular. Stamens indefinite, more or less cohering with the petals and calyx; filaments long. Ovary fleshy. Style filiform; stigmas numerous, collected in a cluster.—Succulent shrubs, very variable in form; stem usually angular. Leaves almost wanting, when present fleshy; natives of America.

CACTUS.

The Cactus tribe, consisting of the genera *Mamillaria,*

Echinocactus, Melocactus, Opuntia, Pereskia, and *Cereus,* require the heat of the dry stove to make them flower well; and though they are sometimes introduced into the greenhouse among other plants, they are considered not to succeed in the cool and moist air. Many of this tribe can live in the greenhouse or room, and even out-of-doors in summer, but they always require to be placed in a hothouse to make them push forth buds, and they may then stand in the greenhouse during their greatest beauty, and be returned to the stove when the season of flowering again approaches. *Cactus* (*Cereus*) *speciosissimus,* the common South American species, is a long, erect, quadrangular plant, with deep furrows, and rich scarlet flowers; it will blossom in a *dry* greenhouse, as will several others, but they are better in a house devoted to them, as they do not bear the moisture of atmosphere requisite for other plants, and even if they do they still want the heat of a stove to make them flower well. Some cultivators succeed in keeping them altogether in the greenhouse, and forcing them to flower, but they require more attention than the amateur can give: one great secret seems to be, that of keeping them quite dry in the winter. The following species of *Cereus* are recommended for suspending in pots in the greenhouse: *amabilis, Dalstonii, ele-*

O. Jewitt lith.

Vincent Brooks Imp.

Cereus Mac Donaldiæ.

gans, flagelliformis, grandiflorus (Night-blowing Cereus), *labiatus, Lowii, Mallisonii, Macdonaldii, Scottii,* etc.

CINCHONACEÆ.

Exogens, the calyx adherent, with a definite number of divisions or none. Corolla superior, tubular, with the divisions equal to the segments of the calyx. Stamens arising from the corolla and alternate with the segments. Ovary superior, surmounted by a disc, usually two-celled. Leaves simple, quite entire, opposite or verticillate.—Trees, shrubs, or herbs; natives generally of the tropics; the properties principally tonic.

BOUVARDIA.

Gen. Char. (*Tetrandria Monogynia.*) Calyx four-leaved, with some teeth between; corolla tubular; anthers included; capsule two-parted, with many seeds, which are edged.

Named after Dr. Bouvard, a French botanist. A genus of beautiful shrubs from South America: *B. versicolor* is generally considered a hothouse plant, but sometimes succeeds in the warmest part of the greenhouse, it has reddish yellow flowers, with a drooping tube; *triphylla,* and *Jaquinii* have handsome scarlet flowers; *splendens,* crimson,

and besides these there are *angustifolia, Cavanillesii, flava, hirtella, lævigata, leiantha,* and *longiflora,* all beautiful plants for the greenhouse, in which they produce a good effect. *B. triphylla,* so called from having three leaves together in a whorl, is a particularly handsome plant from its fine scarlet flowers growing in large heads, shaped like the trumpet-honeysuckle; the stem attains a height of two feet or more. It is a hardy greenhouse plant, and will bear putting out very well, making a very beautiful bed; those plants which have been thus exposed are said also to keep well in a cool frame in winter, so that more specimens may be kept in this way than there is room for in the greenhouse, where space is so valuable at that season. Cuttings should be struck in loam and sand, and placed in a hotbed frame; suckers may also be taken from the root; these plants require plenty of water in summer. When frost is expected, some of them which are still in flower may be carefully taken out of the bed with a ball of earth to their roots, and potted in good, rich soil, when they will flower for some time in the greenhouse.

GARDENIA. (Cape Jessamine.)

Gen. Char. (*Pentandria Monogynia.*) Segments of the calyx

vertical or oblique; corolla at first twisted, funnel-shaped, from five to nine-cleft, with a tube usually long; style elevated; stigma two-lobed; berry two-celled, many-seeded.

Named after Dr. Garden, of Carolina. A genus of very handsome and sweet-scented plants, principally from China, the East Indies, and South America. *G. florida*, called the Cape Jessamine, is a native of the former country, and though generally brought up in the stove, is sometimes introduced into the greenhouse for its fine scent, which is that of the orange; the Japanese are said to be very fond of it, and plant it as hedges around their gardens. *G. radicans* is a more hardy species, having fine, handsome, shining foliage, and the creamy-white flowers, which appear in June, emit a sweet perfume; it may have a good supply of water, and some cultivators recommend that a little should be allowed to remain in the saucer. *G. Rothmannia* is really a Cape species and has spotted flowers. Cultivators recommend that these plants should have a soil of turfy-peat, leaf-mould, loam, and sand mixed together, that the atmosphere should be tolerably moist, and that they should be repotted in the spring. There are double varieties of all the species.

PHILADELPHACEÆ.

Exogens, with the calyx adherent, limb not falling off, having from four to ten divisions. Petals alternate with these divisions and equal to them in number. Stamens numerous, arising in one or two rows from the orifice of the calyx. Styles either distinct, or consolidated into one. Capsule half-inferior, with from four to ten cells, many-seeded. Leaves opposite, toothed, without dots or stipules.—Shrubs of the Northern Hemisphere.

DEUTZIA.

Gen. Char. (*Icosandria Monogynia.*) Calyx adherent, not falling off; divisions of calyx and petals equal in number; stamens numerous, arising from the orifice of the calyx.

Deutzia scabra, a Japanese plant, is now hardy, but it looks so well in the greenhouse early in the year that it is considered an acquisition; it has racemes of pretty white flowers very like those of the common *Syringa,* only smaller. The rough leaves of this plant are used by the Japanese to polish metals; this roughness is occasioned by hairs, which are in the form of stars, and when seen by the aid of a good microscope, are found to be of a silvery hue and of most beautiful forms. It is increased by suckers or layers.

CAPRIFOLIACEÆ.

Exogens, with the flowers having a superior calyx, four or five-cleft, usually with two or more bracts at the base. Corolla superior, with one petal or many, rotate or tubular, regular or irregular. Stamens equal in number to the lobes of the corolla and alternate with them. Leaves opposite.—Shrubs or herbaceous plants; natives of the northern parts of Europe, Asia, and America; properties fragrant and sudorific.

ABELIA.

Gen. Char. (*Didynamia Angiospermia.*) Calyx-tube oblong, having from two to five foliaceous divisions; corolla tubular and five-lobed; stamens four; stigma capitate.

A. floribunda is a beautiful greenhouse plant of a shrubby nature, bearing most lovely pendent flowers, with the corolla, two or more inches long, of a purple-red colour, and the calyx divisions leafy, very large, veined, and ciliated; it flowers in the spring, and continues long in great beauty. *A. uniflora,* from the north of China, is a very ornamental shrub and promises to be hardy in time, but at present it is safer as a greenhouse plant; the flower is handsome, the tube narrow, dilated at the base into an obtuse spur, the corolla white tinged with pink, the limb divided into five,

the throat wide, hairy, and streaked with yellow. *A. triflora* and *rupestris* are also greenhouse species.

ARISTOLOCHIACEÆ.

Exogens, with flowers solitary, axillary, brown or some dull colour; the floral part adherent, tubular, with the segments adhering or rolled in when in bud, sometimes regular, sometimes very unequal. Stamens six to twelve, distinct or adhering to the style and stigmas. Ovary inferior, six-celled generally. Leaves alternate, simple, stalked.—Herbaceous plants or shrubs, the latter often climbing; common in South America; properties tonic and stimulating.

ARISTOLOCHIA.

Gen. Char. (*Gynandria Hexandria.*) Calyx none; corolla monopetalous, strap-shaped, ventricose at the base; capsule six-celled, many-seeded, inferior.

A few species of this extraordinary genus may be introduced for variety with the rest of the climbers; those suitable for the greenhouse are not of so extraordinary a character as many found in South America, or that can be grown in the stove, but they are curious and interesting; the best are *glauca,* from Barbary, with yellow flowers, and

sempervirens, from Candia, with purple flowers; besides these, there are *ciliosa*, from Patagonia, *sipho* and *tomentosa*, from America. The soil must be rich loam and peat, and the roots should have ample space.

A good selection from the foregoing list of plants will enable the cultivator to have the greenhouse constantly gay; and should a hothouse be also close at hand, it will be still more easy to provide a succession of beautiful flowers. The greenhouse being used as a shelter for plants from various countries, the heat must be regulated as much as possible to suit the greater number. It is considered that the less fire-heat is employed, the more healthy the plants will be; but in winter the thermometer must never be allowed to fall to freezing-point, though in the night if it be kept just above this, and in the day raised to thirty-eight or forty degrees, it is sufficient for health: this is the plan for very severe weather. The general average winter *day*-temperature should be about forty-five, and the *night* thirty-eight degrees. As the spring advances, a little more heat may be introduced, to force the growth of the plants; and those which

it is desirable to bring forward still more rapidly, may after this increased heat be removed to the hothouse, to enjoy the still warmer atmosphere established there. No plants should be *suddenly* placed in a great heat, as from the outer air to a warm greenhouse, or from a cool greenhouse to the stove; it is advisable to begin with a cool atmosphere, and gradually increase it; they will at last bear a temperature of sixty or sixty-five degrees, and then produce their flowers in abundance. Air must be freely admitted into the greenhouse, but a draught must be avoided. During frost, severe winds, or heavy fogs, the windows should not be opened; but at all other times, when the sun shines, or when the outer atmosphere is not lower than forty degrees, the sashes should be open, and the time of opening in the morning and closing at night be regulated by the season and weather.

The supply of water must also be regulated by the season: in winter, only sufficient should be given to keep the soil from becoming quite dry; in summer more frequent watering is required, as the evaporation is greater, and plants take up more when in a growing state. It is a good plan to water thoroughly at once, so that every part of the soil be wetted, but not to give more till it is becoming dry: plants are killed as often by too much as too little water.

As most greenhouse plants are increased by cuttings, it will be useful to mention that they are generally selected from the shoots of one season's growth, and care must be taken that there is one joint (the part from which the leaves proceed) above the surface of the ground, and another below, from which the leaves must be cut; this lower joint sends forth new roots when placed in earth suitably prepared for it, and the stimulus is generally given of what is called by gardeners bottom-heat, by placing the pot in a hot-bed, though this is not always necessary. These cuttings should be covered by a bell-glass, and the moisture which settles on the inside wiped away every day, or the young plants will suffer; when they seem thoroughly established, the glass should be raised a little every day, that they may be hardened.

Some plants which do not succeed so well from cuttings absolutely severed from the parent branch, are increased by layering, which is done by bending the branch down into a pot or on to the surface of the ground, and pegging it down firmly; it then sends forth roots at the bent part (which in some plants has to be notched or twisted), where the sap is interrupted in its flow; after these roots are fully established, the young plant becomes independent, and may be separated.

With these slight instructions, added to those given with almost every genus mentioned in these pages, the amateur possessor of a greenhouse may in a great measure be independent of a gardener, and, with a little experience, be able to keep it glowing with a beautiful variety of exotics.

As plants of the Order *Orchidaceæ* require peculiar treatment, they are generally grown by themselves in what is called an Orchid-house, as their principal requirements are heat, moisture, and shade; from this circumstance, the curious tribe called *Orchids* has not been inserted among common greenhouse plants in this Work, and it has been thought advisable to arrange it alone, as many who possess a greenhouse may not have it in their power to afford a separate establishment for these curious productions. This is one of the most singular Orders of plants introduced into cultivation, whether the mode of growth, the form of the flowers, or their curious structure be regarded. The splendour of their colours, their grotesque appearance, and their delicious odour, also add to their attractions; and in their native localities, which are principally the tropics, they constitute one

of the chief beauties of the forest, for they clothe, with their rich leaves and glowing-coloured flowers, the trunks of the trees, particularly those which are fallen and decaying, thus concealing by their beauty and grace, what might otherwise present only objects sombre and unsightly.

Botanical travellers speak in high terms of the beauties presented by the *Orchis* tribe in various parts of the tropics, which the following extracts will show. Mr. Low meets with them in Borneo, and he says:—"As in all tropical countries, the tribe *Orchidaceæ* is in profusion and beauty, and on the open banks of the rivers, where the sun can shed its vivifying influence upon them, these delightful Epiphytes decorate with their fragile but showy forms the otherwise naked and unsightly stumps of decaying forest-trees." Mr. Wallace, when travelling on the banks of the Rio Negro, makes remarks on this splendid Order, and more particularly on one genus, in the following words:—"But what lovely yellow flower is that suspended in the air between two trunks, yet far from either? It shines in the gloom as if its petals were gold. Now we pass close by it, and see its stalk like a slender wire, a yard and a half long, springing from a cluster of thick leaves on the bark of a tree. It is an *Oncidium*, one of the lovely *Orchis* tribe, making these

gloomy shades gay with its airy and brilliant flowers. Presently there are more of them, and then others appear, with white and spotted and purple blossoms, some growing on rotten logs floating in the water, but most on moss and decaying bark just above it. There is one magnificent species, four inches across, called by the natives St. Ann's Flower, of a brilliant purple colour, and emitting a most delightful odour; it is a new species, and the most magnificent flower of its kind in these regions; even the natives will sometimes deign to admire it, and to wonder how such a beautiful flower grows 'atoa' (uselessly) in the Gapo."

The profusion also in which these plants grow in some localities is surprising; Dr. Hooker, when travelling in the Himalayas, met with the *Vanda cærulea* in oak-woods, where it waved its panicles of azure flowers in the wind. He collected seven men's loads in one place, and remarks: —"On the following day we turned out our *Vanda* to dress the specimens for travelling, and preserve the flowers for botanical purposes. Of the latter we had three hundred and sixty panicles, each composed of from six to twenty-one broad, pale blue, tessellated flowers, three and a half to four inches across, and they formed three piles on the floor of the verandah, each a yard high. What would we not have

given to have been able to transport a single panicle to a Chiswick *fête !"*

The structure of the flower of the *Orchis* is very curious. Dr. Lindley describes it as owing its chief peculiarities to the following circumstances:—the stamens and pistil are consolidated into one common mass called the column, two of the three anthers are rarely perfect; the pollen is powdery, or adhering in wedges tied together by an elastic material, or consolidated into masses of a waxy nature; the flower is divided into six parts, which are adherent, variable in form, herbaceous or coloured, generally placed in two rows, the lower having two lateral and one dorsal part, which may be called the calyx; the other parts may be considered the petals, the centre one of which differs from the rest in form and size, and is called the lip; it is either horned, or furnished with various appendages, free or adherent, occasionally moving as if spontaneously, sometimes contracted; in short, assuming greatly varied forms and characters, even that of growing from the apex of the column. The very irregular form of the whole flower renders it very interesting, in many cases representing with some exactness insects, as bees, butterflies, and even scorpions, spiders, and in some instances a helmet with the visor up. Dr. Lindley also men-

tions that on the same plant, and even on the same spike, flowers of extremely different structures are found,—those of several supposed genera and species produced on one plant. The lip is in some instances so irritable that when the point is touched by an insect, it makes a sudden revolution, and imprisons the little creature as long as it moves, but when it ceases to struggle the lip returns to its original position.

This interesting tribe of plants abounds principally in the hot, damp parts of the East and West Indies, Madagascar, and in Central America and Mexico, where they are in profusion, not only seeking nourishment from the soil, but clinging to the trunks of trees, or even to bare rocks, among Ferns and other plants that love the shade of the damp forests of these countries. They are however not confined to these regions, but are seen in the northern and southern hemispheres, and, as is well known, even in our own climate.

A selection will be made of several interesting genera, which can be cultivated in a moderately-heated house, without any very extraordinary trouble; and a few remarks will be added upon that class of Orchids called Epiphytes.

ANŒCTOCHILUS.

This genus is cultivated in the Orchid-house, principally

for the extreme beauty of its leaves, which look like rich velvet, embroidered with metallic colours in a kind of network. *A. setaceus* has leaves of velvet of a dark green hue, covered with golden network of great beauty. *A. Lobbianus* has leaves of a similar colour and character, but, in addition, they are ornamented with a broad line of gold down the centre; the striking appearance of the leaves renders the small white flowers insignificant. These plants flourish best in a mixture of moss and turfy peat, well drained by pieces of broken pots placed at the bottom of the shallow pans in which they are grown: they require heat, moisture, and shade, and when even these requisites are obtained, they flourish still more by having a bell-glass over them, but this must be occasionally wiped, or tilted on one side, to allow the superabundant moisture to evaporate. The roots are increased by division.

There is another genus very similar to the above, named *Dossinia*, of which the species *marmorata* is equally striking and beautiful; the velvet leaves are not green, but copper-coloured, with the veins of a golden hue; it is a native of the Indian Archipelago, and requires similar treatment to the species of *Anœctochilus* which are cultivated in this country.

GOODYERA.

A genus also resembling *Anœctochilus* in the velvety leaves, which are a deep green on the upper surface, and red underneath. *G. discolor* is a stove species, and bears beautiful spikes of white flowers in winter, which makes it desirable, but it must be kept in a hot and yet moist atmosphere: the soil should be turfy peat: it is a native of South America. The following species are not so tender, and will flourish with common treatment and a cool situation. *G. pubescens* and *tessellata* are both natives of North America, and produce spikes of white flowers in July; *procera* is from Nepaul, and flowers from July to December; *repens* is a Scotch species, and is sometimes called *Satyrium* or *Neottia repens.*

BLETIA.

This is a beautiful genus of Orchids, some of which will flourish in a moderately warm house. *B. hyacinthina,* a Chinese species, grows a foot high, with a leafy stem, and bears a raceme of purple flowers, which appear in March. *B. Gebina,* a native of Japan, produces its violet and white flowers in April. *B. acutifolia,* a native of South Carolina,

has pale rose-coloured flowers, which do not appear till September. There are several other species which require a greater amount of heat than the above, natives of the West Indies and Mexico. The roots are increased by division, and the soil best suited to them is a mixture of turfy peat, light loam, and a portion of manure; they should be kept in a dormant state in the winter, by being placed where they will be cool and dry, but early in the spring they will require a warmer situation to force their growth.

CALADENIA.

A genus of Australian Orchids, said to be difficult to cultivate, though they do not require much heat. They are occasionally brought amongst others of the same Order, but very soon dwindle and die; they are on this account not worth inquiring for by the amateur, but should any of the genus fall in his way, they may flourish for a time by being potted in loam, peat, and sand. The flowers of the twenty or thirty species which have been brought over are either lilac, purple, white, or yellow.

CALANTHE.

This is a genus of beautiful plants, the flowers of which are particularly handsome, forming generally a dense spike, the colour of which is usually white. *C. veratrifolia*, from the East Indies, has a dense spike of many white flowers, and the leaves are long and plaited; *sylvatica* has a looser spike of white blossoms; *densiflora* has a dense spike of yellow flowers; and there are other species with orange and pale yellow blossoms; they are natives of the East Indies, Japan, etc. The soil should be peat, loam, and sand; and though they require much water when growing, the pots should be well drained.

CALOCHILUS.

This is an Australian genus of small Orchids, of which *C. campestris* has green and brown, and *paludosus* brown flowers; they grow about a foot high. The roots may be divided, and they require turfy peat, loam, and sand.

CALOPOGON.

A North American genus, of which *C. pulchellus* has been

introduced into cultivation; it has very pretty purple flowers, which appear in July. The soil should be peat, loam, and sand.

DISA.

A genus, from the Cape of Good Hope, of very beautiful Orchids, with the curious flowers either growing singly or in long spikes. *D. cornuta* has a loose spike of blush-coloured flowers, often more than a foot long; *chrysostachya* has them of a golden colour; *grandiflora* produces a large, solitary flower of a brilliant scarlet colour; other species have purple, lilac, or blue flowers. They are said to be difficult to keep in health, as they are bog plants, and yet require considerable heat. Another Cape genus requiring the same treatment is called *Disperis*, the flowers being either crimson, lilac, or straw-coloured.

OPHRYS.

This genus contains many of those species the flowers of which so greatly resemble insects; and, as they are principally natives of England and the Continent, they may be

considered hardy, though not very easy of cultivation. Some of them are worth introducing for the curious character of the flower, and a good collection is very interesting. The species *aranifera*, the Spider; *muscifera*, the Fly; *apifera*, the Bee; and *fuscifera*, the Fly-bearing Ophrys are British; *tenthredinifera*, *arachnites*, the Black Spider, and *arachnoidea*, the Spider-like Ophrys, are European species. Besides these, the species *luteum*, *ferrum-equinum*, *ciliata*, *Scolopax*, *exaltata*, *fusca*, *grandiflora*, *tabanifera*, and others may be introduced. The roots seem to require a mixture of loam and chalk, and when once planted they should not be again disturbed.

ORCHIS.

The original genus *Orchis* has been divided into many genera by modern botanists, as *Anacamptis*, *Gymnadenia*, *Perularia*, *Plantanthera*, etc. Most of the species are hardy, being natives of England, the Continent, North America, and other temperate climates; a few species may therefore be introduced into a cool house with success, and the following are perhaps the most handsome:—*longicornis*, *bifolia*, *sambucina*, *spectabilis*, *Morio*, *papilionacea*, *conopsea*, *odora-*

O. Jewitt lith.

Vincent Brooks Imp.

Cypripedium barbatum.

tissima, foliosa, etc. They require the same treatment as the plants of the last genus, but are not easily cultivated, for the roots do not readily increase out of their native localities. The bulb or tuber of the season produces an offset, which will bear the plant of the succeeding year, so that when an *Orchis* is taken out of the ground after the season is over, there will be found a shrivelled and a plump tuber, the latter containing the young plant.

CYPRIPEDIUM.

A genus known by the English name of Lady's Slipper; the species are very beautiful, and those grown in an atmosphere of heat and moisture are tolerably easy of culture, as *C. barbatum,* having purple and green flowers; *insigne,* purple, green, and white; *Irapeanum,* yellow; *venustum,* green and red; and *Lowii,* with purple and green flowers. The more hardy species are chiefly natives of North America, and are met with in the woods of that country, where they are called "Mocassin Flowers;" they should be cultivated in a shady frame, which in summer even should be closed, to keep the plants in a cool, quiet, moist atmosphere;

they prefer peat-earth, with a covering of moss kept in a damp state; this will imitate their native locality pretty well, and the plants in flower are so handsome and interesting that they are worth the pains bestowed on them. They should be very seldom disturbed at the roots. The following are a few of the species:—*album* and *caudatum*, flowers white; *arietinum*, white and red; *humile* and *spectabile*, white and purple; *pubescens*, yellow and purple-flowered; these are natives of North America: *guttatum*, with flowers white and pink, and *ventricosum*, with purple flowers, are Siberian species. *C. Calceolus* is the English species, found in woods, its yellow flowers appearing in May.

SATYRIUM.

An interesting genus of the Orchis tribe, requiring similar treatment to that of the genus *Ophrys;* the pots should be very well drained, and the plants kept dry when not vegetating; they may be treated as frame plants though they are natives of the Cape. The species *cucullatum, parviflorum, membranaceum, coriifolium, erectum,* and *pustulatum* have yellow flowers, slightly varied with pink, green, or orange;

foliosum has purple; *carneum*, blush; *papillosum*, rose-colour; and *candidum*, white flowers.

DIURIS.

These are tolerably hardy Orchids from Australia, with very beautiful flowers of a golden yellow, spotted yellow, sulphur, purple, or white colour; the species are *aurea*, *maculata*, *sulphurea*, *alba*, *longifolia*, etc.; from the Swan River particularly there are *Drummondii*, *laxiflora*, *corymbosa*, *filifolia*, etc.

The Orchids called Epiphytes are those which do not grow in the soil of the ground, but cling to the bark of trees for support, where they gain nourishment, not from the tree to which they adhere, but from small accumulations of soil or decaying bark, or other vegetable substances found in the crevices of the bark; they are therefore not true parasites. The species which are introduced into this country are grown on logs of wood or in baskets of moss and chips suspended from the roof; these plants however

require more care, and a hotter and damper atmosphere than the terrestrial Orchids, and can seldom be introduced except where these essentials to their health can be easily obtained. A few will however be mentioned, to point out their beauty and extraordinary characters.

VANILLA.

This genus consists of West Indian and South American plants. *V. aromatica* and *planifolia* bear fruits which are the Vanilla of commerce. Lindley says :—"Vanilla is one of the most delightful aromatics known; it is used in the manufacture of chocolate, liqueurs, and of various articles of confectionery. The substance called by this name is the dried fruit of *V. planifolia* and other species; it contains a great quantity of essential oil and a good deal of benzoic acid. Dr. Bird says that the effluvium of Vanilla intoxicates the labourers who gather it. *V. claviculata* is bitter as well as fragrant, and its leaves are regarded in the West Indies, where it is called 'Liane à blessures,' as having medicinal properties. In New Holland many species are eaten by the natives, who find their starchy roots a good article of diet." This plant has been grown in the hothouses of this country, but it never perfected its fruit till Dr. Morren of Liége dis-

covered that from some peculiarities of structure, it is necessary to apply the pollen to the stigma artificially. "In the year 1836 a plant in the hothouses in the Botanic Gardens at Liége produced fifty-four flowers, which, having been artificially fecundated, exhibited the same number of pods, quite equal to those imported from Mexico; and in 1837 a fresh crop of about a hundred pods was obtained upon another plant by the same method. He attributes the fecundation of the plant in Mexico to the action of some insect, and hence accounts for the non-production of fruit in those plants which have been removed to other countries." In its native localities this plant is said to climb to the tops of the highest trees, and there to display its curious white flowers. When introduced into the Orchid-house in this country, it should be grown on a portion of decaying wood, or planted in a pot of decayed tan mixed with rubbish, and the stem trained where it can take root, which it does like Ivy. It requires an atmosphere hot and damp, the temperature never below sixty degrees; frequent sprinklings or showers of water are better for the plant than much water at once.

ONCIDIUM.

This is another genus of Epiphyte Orchids, natives of the West Indies and South America. They are very curious plants, of which near a hundred species have been introduced into the hothouse on account of the great beauty of the flowers. *O. papilio,* growing in Trinidad, has large yellow and red blossoms, of which the footstalk is so slender that they move about in the wind, looking like splendid insects; it is there called the Butterfly Plant. Mr. Gosse mentions one he found, of which the leaves were a foot and a half long and four or five inches wide, and that the flower-spikes were eight or ten feet in length; the flowers however, he says, were not very conspicuous for beauty, they being of a yellow hue, studded all over with red dots. It was the species *Carthagense,* and he found it in abundance in Jamaica, growing on Calabash-trees. The colours of the flowers of all the species seem to be yellow of various shades, from straw to copper-colour, and tinged with green, red, brown, and other colours. This genus does not seem to be difficult to cultivate if plenty of heat and moisture be allowed.

AERIDES.

This genus derives the name of "Air Plant" from the property the species have of flourishing for some time suspended in the air without any connection with the soil; in this state they will continue to flower for some weeks, and in their native country the natives procure them when ready to flower and hang them in their rooms, where their beautiful spikes of delicate and curious blossoms gradually unfold and shed a delightful perfume. *A. odoratum* has delicate flowers of white and pink; *arachnites,* brown and purple; *tessellatum,* greenish-yellow; *affine,* pink; *crispum,* white and rose-coloured; *virens,* lilac; and *maculosa* and *quinquevulnerum,* spotted. These species are from the East Indies, Java, and the Philippines; it seems advisable in cultivating them to plant the root with decayed wood and leaves, with a little peat or vegetable mould, and to suspend them in the hottest and dampest part of the house. They succeed for a time in baskets of moss kept very damp.

NEPENTHES.

As this Order of curious plants requires, like Orchids, much heat and moisture, the amateur may try to succeed in their cultivation, and he will be amply repaid for his care by possessing specimens of one of the most curious productions of the Vegetable Kingdom. They are bog-plants, and in the stove in this country are grown in a peat-soil mixed with sphagnum, and kept very damp: the pots should be of a good size. *N. distillatoria* was the first introduced, in 1789, from Ceylon, and is called the "Pitcher Plant," from the curious appendage it has at the ends of the leaves in the form of a pitcher with a lid, and which contains a liquid distilled from the plant. *N. Rafflesiana,* from the Philippines, has the pitchers spotted with crimson, and they are of a large size. *N. ampullacea* is from Manilla; *N. albo-marginata* has a little band of wool round the edge of the pitcher.

Mr. Adams, the assistant-surgeon of the 'Samarang,' describes the *Nepenthes* as growing abundantly in Borneo, where they are called "Monkey-cups" by the Malays. He writes:—"The *N. distillatoria* is a very common plant in the Sarawak territory, where it may be seen, with its curi-

ously formed leaves, clinging to the trunks and foliage of the trees that fringe the banks of the rivers, or the interior of the forest." After mentioning another species, he continues :—"There are two kinds of pitchers in each species, one growing at some distance from the ground, which is long, slender, and usually green or marbled, spotted at the mouth only, and furnished with a very long footstalk; the other kind is formed of the lower leaves, and is generally placed upon or near the surface of the ground. These latter are most generally half full of insects, chiefly ants. The pitchers, when full grown, almost invariably contain fluid in different proportions; in some cups there is nearly an ounce, in others only a few drachms; many of these contain insects which, if not killed, find it difficult to escape out of the limpid and mucilaginous liquid. In one pitcher I found five crickets, hundreds of small ants, mostly dead, and numerous larvæ of mosquitoes and other gnats. The cups near the ground frequently contain living larvæ of Dipterous insects, while the young and elevated cups are free from them, and contain pure limpid water. The appearance of these beautiful and delicately formed vegetable vases is extremely interesting and very singular, as they hang suspended by their fragile handles, offering a cooling draught

to the different animals that frequent the neighbourhood. By pouring the water of several dozen of pitchers into one of large size, I have several times succeeded in quenching my thirst with a good half-pint. Many of the full-sized cups will hold considerably more than a pint." The flowers of these plants are less interesting than the leaves.

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